PATHOLOGICAL RESEARCHES

ON

PHTHISIS.

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Translated from the French,

WITH INTRODUCTION, NOTES, ADDITIONS, AND AN
ESSAY ON TREATMENT,

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'Que de volumes le perfectionnement de *la méthode d'observation* rendra bientot inutiles!"—*Broussais.*

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THE TRANSLATOR.

CONTENTS

Page
Translator's Introduction xv
Author's Preface xliii

PART I.

PATHOLOGICAL ANATOMY.

CHAPTER I.

Respiratory Organs 1
Art. I.—Of the Lungs . . . . . ib.
Obs. I.—Tubercular Cavity, including three-fourths of the Right Lung 10
Obs. II.—Mass of organised Fibrin filling a moderately sized Tubercular Excavation 16
Obs. III.—Healthy Fragment of Pulmonary Parenchyma, unattached, in the midst of an Excavation 20
State of the Bronchi 26
Acute Inflammation of the Substance of the Lungs in the last Stage of Phthisis 27
Ditto towards the Close of other Chronic Diseases . . ib.
Art. II.—Of the Pleuræ 28
Adhesions of the Pleuræ in Phthisis . . . . ib.
Ditto in Cases Fatal from other Diseases . . . 29
Acute Pleurisy towards the Close of Phthisis and other Chronic Affections . . . . . . ib.
Art. III.—Of the Epiglottis, Larynx, and Trachea . . 30
Sect. 1.—Ulcerations of the Trachea 31
Sect. 2.—Ulcerations of the Larynx . . . 33
Sect. 3.—Ulcerations of the Epiglottis . . . 34
State of these Organs in Subjects dead from other Chronic Diseases 35

CHAPTER II.

Page
Organs of Circulation 36
Art. I.—Of the Heart and Pericardium . . . ib.
State of the Heart in other Chronic Diseases . . 38
Art. II.—Of the Aorta . . . . . ib.
State of the Aorta in other Chronic Diseases . . 40

CHAPTER III.

The Digestive Organs 42
Art. I.—Of the Pharynx and Œsophagus . . ib.
State of these Organs in other Chronic Diseases . . ib.
Art. II.—Stomach 43
Sect. 1.—Of the Volume and Situation of the Stomach . ib.
Ditto after other Chronic Diseases . . . ib.
Sect. 2.—Softening with diminished Thickness of the Mucous Membrane of the Stomach . . . 44
Sect. 3.—Redness combined with Thickening, with a Mamillated State or Softening of the Mucous Membrane, and occurring in the anterior portion of the Stomach . 47
Sect. 4.—Redness with Softening of the Mucous Membrane lining the Great Cul de Sac of the Stomach . . 48
Sect. 5.—The Mamillated appearance and Greyish Colour of the Mucous Membrane of the Stomach . . 49
Sect. 6.—Ulcerations of ditto 50
Sect. 7.—Some other Morbid Changes of ditto . 51
Tabular View of the different Lesions of the Gastric Mucous Membrane . . . . ib.
Art. III.—Of the Duodenum 52
Art. IV.—Of the Small Intestine . . . 53
Sect. 1.—Of the Mucous Membrane of the Small Intestine in its healthy state 54
Sect. 2.—Pathology of the Small Intestine . . 57
Obs. IV.—Large Intestinal Ulcerations, Perforation of Small Intestine 62
State of the Small Intestine in other Chronic Diseases . . 66
Art. V.—Large Intestine 67
State of ditto after other Chronic Diseases . . . 73

CHAPTER IV.

Of the Lymphatic Glands . . . . . ib.
Art. I.—Of the Mesenteric Glands . . . ib.
Art. II.—Of the Meso-cœcal, Meso-colic, and Lumbar Glands 77
Art. III.—Of the Cervical, Axillary, and Bronchial ditto . . ib.
State of the Lymphatic Glands after other Chronic Diseases 78

CHAPTER V.

Page
Biliary Apparatus 79
Art. I.—Of the Liver . . . . . ib.
State of ditto after other Chronic Diseases . . . 80
Art. II.—Of the Bile and Gall Bladder . . 83
State of ditto after other Chronic Diseases . . . 84

CHAPTER VI.

Of the Spleen . . . . . . ib.
State of ditto after other Chronic Diseases . . . 86

CHAPTER VII.

Urinary Organs . . . . . . ib.
Obs. V.—Tubercular Matter in the Right Kidney and corresponding Ureter 87

CHAPTER VIII.

Of the Genital Organs 90
Art. I.—Of the Male Genital Organs . . . ib.
Obs. VI.—Tubercular Matter in the Prostate, Vesiculæ, and Vas Differens . . . . . . ib.
State of Male Genital Organs after other Chronic Diseases . 95
Art. II.—Of the Female Genital Organs . . ib.
State of ditto after other Chronic Diseases . . . ib.

CHAPTER IX.

Of the Peritoneum 96
Obs. VII.—A thick Layer of the Tubercular and Grey Semi-transparent Matter in the Epiploon and Meso-colon . . 97
State of the Peritoneum after other Chronic Diseases . 101

CHAPTER X.

Of the Brain and its Membranes 102
Obs. VIII.—Hydatids in the upper part of Brain . . 105
Obs. IX.—Tubercles in the Cerebrum and Cerebellum . 110
Summary 114

PART II.

SYMPTOMS.

CHAPTER I.

Page
Of the Symptoms of Phthisis 121
Table of the Duration of Phthisis 124
Cough 125
Expectoration . . . . . . ib.
Hæmoptysis 129
Obs. X.—Copious Hæmoptysis unsuccessfully treated by Bleeding 132
Dyspnœa 136
Pain 137
Fever 139
Sudanima 142
Thirst . . . . ib.
Appetite 143
Diarrhœa . . . . ib.
Emaciation 147
Face, &c. 148

CHAPTER II.

Diagnosis . . . . ib.
Diagnosis of the first period of Phthisis 149
Obs. XI.—Phthisis recognised the seventeenth day from its invasion 150
Diagnosis of the second period of Phthisis . . . 154
Obs. XII.—Bronchial Dilatation in the summit of the Lungs, mistaken for a Tuberculous Excavation 155

CHAPTER III.

Pneumonia and Pleurisy occurring shortly before death . 163

CHAPTER IV.

Symptoms of Ulcerations of the Epiglottis, Larynx, and Trachea . 164
Sect. 1.—Symptoms of Ulcerations of the Epiglottis . ib.
Obs. XIII.—Ulcerations of the Epiglottis unaccompanied by those of the Larynx and Trachea 165
Obs. XIV.—Complete destruction of the Epiglottis . 168
Obs. XV.—Deep Ulcerations of the Epiglottis and Larynx . 172
Sect. 2.—Symptoms of Ulcerated Larynx . . . 177
Sect. 3.—Symptoms of Ulcerated Trachea 178
Obs. XVI.—Large Ulcerations of the Trachea. Symptoms very indistinct 179

Page
Obs. XVII.—Extensive and deep Ulcerations of the Trachea. Destruction of portions of the Cartilaginous Rings. No Symptoms 183
Inflammation of the Lining Membrane of the Trachea without Ulceration 187

CHAPTER V.

Symptoms of the various alterations of the Gastric Mucous Membrane 188
Sect. 1.—Symptoms of Softening with diminished Thickness of the Mucous Membrane of the Stomach . . 189
Obs. XVIII.—Predominance of Gastric Symptoms . . 190
Sect. 2.—Symptoms of the Inflammation of the Mucous Membrane of the Stomach when bounded to its anterior surface 195
Obs. XIX.—Strongly marked Gastric Symptoms . . 196
Sect. 3.—Symptoms observed when the Mucous Membrane of the Stomach is red and softened in the Great Cul de Sac 200
Obs. XX.—Few and slightly marked Gastric Symptoms . 201
Sect. 4.—Symptoms of Simple Ulcerations of the Gastric Mucous Membrane 204
Obs. XXI.—Rather prominent Gastric Symptoms . ib.
State of the Digestive Functions when the Gastric Mucous Membrane was Mamillated and Greyish; also when it was perfectly sound 208
Summary of the Four preceding Sections . . . 209
Obs. XXII.—Incomplete Cicatrix of the Gastric Mucous Membrane 210
Obs. XXIII.—Transformation of a Portion of the Muscular Tunic into a Semi-cartilaginous Substance . . . 214
Sect. 5.—State of the Tongue 217
Obs. XXIV.—Tongue of a deep red, at first moist, afterwards dry. Gastric Mucous Membrane healthy . . . 218

CHAPTER VI.

Functions of the Genital Organs 224
Sect. 1.—Generative Functions in Men . . . ib.
Sect. 2.—Generative Functions in Women . . ib.

CHAPTER VII.

Cerebral Symptoms 226
Obs. XXV.—Ventricular Arachnitis. Symptoms prominent 227
Obs. XXVI.—Circumscribed Sub-arachnoidien Inflammation: partial Softening of the Brain 230
Obs. XXVII.—Partial Softening of the Brain . . 233

CHAPTER VIII.

Of the Varieties which Phthisis presents in its progress . 235
Obs. XXVIII.—Phthisis Latent during Twelve Months . 236

Page
Obs. XXIX.—Phthisis Latent during Eight Months . 238
Obs. XXX.—Phthisis Latent during Thirty Months . 242
Obs. XXXI.—Phthisis Latent, very Chronic, overlooked . 246
Obs. XXXII.—Phthisis Latent, Encysted Tubercles . . 251
Obs. XXXIII.—Phthisis Latent, Tuberculous Patches between Peritoneal False Membranes . . . 254
Summary of the Six preceding Observations . . . 258
Acute Phthisis 260
Obs. XXXIV.—Phthisis Fatal on the Thirty-fifth Day . ib.
Obs. XXXV.—Acute Phthisis. Consecutive Pneumonia the Cause of Death 263
Obs. XXXVI.—Phthisis Fatal in Fifty Days . . 266
Obs. XXXVII.—Phthisis Fatal in Forty-eight Days . 270
Summary of the preceding Observations . . . 273
Obs. XXXVIII.—Phthisis Fatal in Thirty Days . . 274

CHAPTER IX.

Symptoms of the Perforation of the Lung, by Tuberculous Softening 278
Obs. XXXIX.—Excavation communicating with the Pleuræ and Bronchi. Death Thirty Days after the Perforation . ib.
Obs. XL.—Excavation communicating with the Pleuræ, but not with the Bronchi. Death Three Days after the Perforation 281
Obs. XLI.—Excavation communicating with Pleuræ and Bronchi 283
Obs. XLII.—Excavation communicating with the Pleuræ and Bronchi. Death Eighteen Days after the Perforation . 286
Obs. XLIII.—Excavation only communicating with the Pleuræ. Death Thirty-six Hours after the Perforation . 288
Obs. XLIV.—Excavation communicating with the Pleuræ and Bronchi. Death Twelve Hours after the Perforation . 292
Analysis of the preceding Observations . . . 294
Obs. XLV.—Excavation communicating with the Pleuræ and Bronchi. Death Six Days after the Perforation . 295
Continuation of the Analysis 299

CHAPTER X.

Sudden Deaths 302
Sect. 1.—Unexpected Deaths, which may be explained more or less plausibly by the state of the Organs after Death . 303
Obs. XLVI. . . . . . . ib.
Obs. XLVII. 306
Sect. 2.—Sudden Deaths, which are not accounted for by the post-mortem appearances 309
Obs. XLVIII. . . . . ib.
Obs. XLIX. 310
Obs. L. 313
Obs. LI. 316

CHAPTER XI.

Page
Causes of Phthisis 319
Influence of Sex . . . . . ib.
———— Pneumonia and Pleurisy . . . 321
———— Bronchitis 324
———— Dress 328
Hereditary Influence 329
Influence of Age 330
———— Dust 335
———— Moisture 339
———— Dry and Hot Atmosphere . . . 341
———— Animal Emanations . . . . ib.
———— Vegetable Emanations . . . ib.
———— Mineral ditto 342
———— Impure Air . . . . ib.
———— An Active Life in the open Air . . . 343
———— A Sedentary Life, with confined posture of the Body ib.
Exercise of the Vocal Organs 344
Influences which predispose to Phthisis . . . 345
Preservative Influences . . . . . . ib.
Influence of Climate 346
Contagion of Phthisis 348
Influence of Season 350

CHAPTER XII.

Treatment 351
Essay on Treatment 356

TRANSLATOR'S INTRODUCTION.*

> "The foundation of all knowledge must be a careful and extensive acquisition of *facts*; and the *first* duty of an inquirer, in any department of science, is to bind himself down to *such a patient accumulation*, bewaring of all *premature* attempts to combine and generalize them."—Vide *Abercrombie on the Intellect. Powers*, p. 375.

> "Ce que se rattache à l'espèce humaine, considerée en masse, est de l'ordre des faits physiques; plus le nombre des individus qu'on observe est grand, plus la volonté individuelle s'efface et laisse prédominer la série des faits généraux."—*Quetelet de l'Influence des Saisons sur l'Homme*. Bruxelles, 1832.

WHETHER we give publicity to our own researches, or become the means of disseminating the opinions and investigations of others, we should be alike actuated by a conviction of their utility in the abstract, the want of further information, and a conscientious impression that the facts they embody are the literal transcript of realities, and not the distorted or partial materials so easily accumulated for the support of a theory or the making prevalent individual opinion. At a moment like the present, when books are daily teeming from the press in almost every department of medical science, any useless addition to their number ought scrupulously to be avoided; for both time and intellect are wasted in the discrimination of what is worthless or mere repetition, instead of being occupied in the acquirement of what really forms an increase to the knowledge we already possess. In the more positive sciences, the evil alluded to is less sensibly felt, the greater precision of the principles on which they are founded, limiting the field for speculation, by giving a necessary convergence to faithfully detailed phenomena, and at the same time acting as guides for the rejection of inaccurate imperfect description, or hasty ill-digested induction.

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* Since much of the information scattered through the course of this introduction, respecting the author and the method he has pursued, to be correct, must have required peculiar opportunities, the translator feels called upon to say, that he has spent nearly four years in the hospitals of Paris; that he assiduously followed the visits, post-mortems, and lectures of M. Louis, at la Pitié, for twelve months; that he has been honoured with the private intimacy of the author, and by his kindness inspected the tables from which the present volume was composed, as also those for his researches on the "Affection Typhöide." These various sources have all conspired to impress him with a deep conviction of the value of M. Louis' works and method, and his presenting the English reader with the present volume is a simple consequence of his sincerity.

Medicine, for many very evident reasons, has been and continues to be the victim of varied and contradictory hypotheses:—the minds of all who have attempted to trace its deviating course, have wearied in the vague conflict of opinions, and have either sheltered themselves under the authority of a name, or satisfied their doubts by the creation of a principle quite as hypothetical and uncertain as any by which they were previously bewildered. This favoured progeny of their fancy, like coloured media to the vision, soon tinges all intellectual combinations, and falsifies the very evidence of the senses; facts seem to multiply in its support, and what at first was regarded as probable, soon strengthens with the fond hope of discovery and the assent of eager uninquiring enthusiasts, becoming the basis of a system from which dissent involves error, and opposing facts are either overlooked or discredited. With such a mental bias, the very talents and researches of an individual become injurious to a profession he would otherwise have adorned, and how often in looking back over the history of medicine, can we see, as it were, our progress arrested by some favourite dogma of a powerful but prejudiced mind, until a rival intellect lays bare the fallacy, erects another in its stead, changing little more than the name of what it thought to have annihilated. The "Solidists," the "Fluidists," the "Brownists," the "Cullenists," and the "Broussaists," with many others, have undoubtedly obstructed the path of rigorous and impartial observation, by limiting the wide field of philosophic inquiry to the too often forced adaptation of facts calculated to support their own peculiar, and almost necessarily imperfect conceptions: and although their labours have not been fruitless, and much positive knowledge may be gleaned from the mass of their investigations, who does not feel that its volume has been infinitely lessened, and its value impaired, by the pre-existence of a principle it was intended to establish, rather than eliminate. The ease with which a theory may be proposed and supported, is exactly proportionate to the vagueness of our knowledge, to the absence of impartial incontestable facts; and until the latter have enjoyed that natural precedence which has been granted them in every science that deserves the name, our deductions can never be established upon any satisfactory and lasting foundation. Could genius grasp the bearings of those laws which influence the health and modify the diseases of organized beings, *still*, observation would be necessary to test the truth or falsehood of its inspirations, but from the finite nature and contracted limits of the human faculties, the necessity of observation if not more absolute is at least more glaring, and the conviction of our mental feebleness should make us shrink from all hasty precocious generalization.

Let the candid inquirer contemplate the mass of crude amorphous materials which ages have accumulated; let him glance over those creeds of medical infallibility which have successively risen and waned in the opinion of mankind; then let him direct his view to the living representatives of systems either stamped with antiquity, or attractive by their modern freshness and apparent novelty, and what are the conclusions he must form? Let him change his locality and he changes his principles, while everywhere *facts* are their rep[illegible]ed foundations. The pure antiphlogistics of the French, the contro stimulants of the Italians, the omœopathic of the Germans, and the hepatic nostrums of England, all lay claims to his attention, and are all recommended as the fruits of long experience and multiplied observation. The discovery of truth from such conflicting testimonies, if possible, is at least a Herculean task, and he either becomes the bigoted partisan of a sect, or what is far more rarely the case, resolved to have recourse to rigorous impartial inquiry. The results of his labours may indeed be unsatisfactory, and must necessarily embrace but a limited portion of the vast field of medical investigation, he will however ensure the satisfaction of collecting materials available to others, and have sacrificed the desire of ephemeral reputation, to the far higher motive of being really useful. It is indeed a subject of deep congratulation, that minds such as these are daily multiplying, and in looking back on what a few years have effected, there is every encouragement for future anticipation, and every reason to suppose, that the results to which we shall ultimately arrive, though probably never of any Utopian character, will at least commend themselves to the reception of every sound and unprejudiced mind. What names, we would ask, continue to survive the oblivious tendency of time? The detailers and chroniclers of *facts* not *opinions*; the latter have long "sunk into the abyss of forgetfulness, and truth alone swims over the vast extent of ages."

Our author presents an interesting example of the effect produced upon the mind, by the contemplation of the uncertain nature of much of our medical knowledge; and he is also an illustrious proof of what the exertions of a single individual can effect, when, unfettered by theory or system, they are steadily directed to the simple unbiassed observation of facts. M. Louis, from the age of 17 to 33, studied and practised medicine in Russia with considerable success. Gifted with a naturally active and inquiring mind, the multitude of opinions contrasted with the paucity of facts, could not fail to create great dissatisfaction and uncertainty as to the validity of many of the principles most generally admitted, and on which much of our practice was founded.

Accidental circumstances at the close of this period bringing him to Paris, he soon became acquainted with and eagerly studied the writings of the celebrated Broussais, at the same time assiduously following that distinguished pathologist, both in the hospital and lecture room. The impression produced upon his mind by this direction of his studies, was, that while M. Broussais evidently proved others to be wrong, he was very far from demonstrating himself to be right; that while he rendered palpable the doubts which might reasonably be entertained respecting many of our present principles, he had failed to substitute any thing more satisfactory in their place. From this moment M. L. resolved to devote himself *exclusively* to observation, solely actuated by a desire to relieve oppressive doubt and uncertainty, and with no intention of ever giving publicity to his labours. He at once decided on remaining at Paris, as affording the best opportunities for prosecuting his intentions, and entered the hospital of La Charité as a *clinical clerk*, under his friend Professor Chomel. For nearly *seven years*, including the flower of his bodily and mental powers (from the age of 33 to 40), he consecrated the whole of his time and talents *to rigorous impartial observation.* All private practice was relinquished, and he allowed no considerations of personal emolument to interfere with the resolution he had formed. For some time his extreme minuteness of inquiry and accuracy of description, were the subjects of sneering and ridicule, and *cui bono* was not unfrequently and tauntingly asked. The absence of any immediate result seemed for a time to justify their contempt of a method, involving too much labour and personal sacrifice to be generally popular or easily imitated; and M. Louis himself, at moments, almost yielded to the increasing difficulties of the task he had undertaken. No sooner however were his facts sufficiently numerous to admit of numerical analysis, than all doubt and hesitation were dissipated, and the conviction, that the path he was pursuing could alone conduct him to the discovery of truth, became the animating motive for future perseverance. Many of the results to which he arrived soon attracted general attention, and among those who had formerly derided his method while they admired his zeal, he found many to applaud and a few to imitate. From this moment may be dated, the presence of that strong impression of the necessity of exact observation, by which the school of Paris has been since so distinguished, and which is now gradually pervading the medical institutions of the continent and our own country: it is undoubtedly to the author of the present volume, that we ought to ascribe the practical revival of that system, which had for ages been verbally recognised but never before rigorously exemplified. For the last five years he has been physician to the hospital of La Pitié; the number of advanced students (principally English, American, and German), who follow his visits and clinical lectures, are the best testimonies to the indefatigable zeal and talent with which he still pursues his investigations, and, contrasted with the now deserted wards of M. Broussais, forms a practical illustration of the striking change which has been effected in the spirit of medical inquiry.

With no preconceived views of his own to establish (and by opinion,[*] or employ words and expressions, the meaning of which is not definite, but might be interpreted to coincide with the peculiarities of individual opinion. "Temperament," "pneumonic sputa," "catarrhal expectoration," "marked febrile movement," "healthy state of the digestive tube," and an infinity of other expressions, should never be substituted for the simple description of what *we* include by the terms. The value of particular phrases is relative, and liable to vary with the daily progress of science; their real meaning can only be surmised by reference to the prevalent opinions of the time. The observer should always recollect that the reader has no means to judge of his skill, but in proportion to the minuteness and precision of his descriptions; this observation should be sufficiently complete to enable a stranger to understand and employ it, the language should be clear and concise, and in all enumeration of details, the talent of saying a great deal in a few words should be assiduously cultivated. The want of attention to this rule, renders the perusal of the great majority of observations irksome and fatiguing. Lastly, let him never forget, that mere opinions and unsupported conclusions can not be admitted as additions to our knowledge, until they have again been exposed to the searching ordeal of facts; while, faithful description, can never cease to be valuable, however absurd the hypothesis it may have tended to establish.

But observation, however extended and exact, is of itself insufficient to generate conclusions, for, collected as our facts must have been, through a series of months or years, and consisting of an infinite variety of details, no memory could recall and no mind could grasp their complicated relations with each other. To accomplish this, the "*numerical method*" is necessary, that is, *counting* the number of all the individual facts, comparing their relative frequency in cases of a particular class, and then determining their real value, by a comparison with facts of other classes, which have also been reduced to similar elements. This is the plan pursued by our author, and which must be adopted by all who would seek to establish truth and arrive at general results. Hitherto we have satisfied ourselves with the authority *of experience*, and its currency in medicine is such, that any distinct definition of its value has scarcely been attempted. But let us inquire what is really included by experience? Is it not the expression of the conclusions of the mind upon one or more subjects to which the attention has been habitually directed? Is it not, simply, the final impression produced by a review of the past? If the discovery of truth be its tendency, why has individual experience been hitherto so discordant? The answer is easy. In a science like medicine, where the difficulties of observation are so great, and the objects to be observed so numerous, where theories bias, and individual peculiarities necessarily exert their influence, nearly all, if not all the conclusions of mere experience are varying and fallacious. Who does not feel himself naturally inclined to study one class of affections more than another, to be arrested by particular symptoms, to be more interested with facts, which apparently coincide with some favourite views he has either adopted from others, or insensibly formed during the course of his studies? How strongly all *extraordinary* facts and what we call *interesting cases*, are engraven upon the mind, and for ever prominent in the retrospect, while the great mass of *ordinary* and consequently *important* occurrences are overlooked or forgotten? Some unhoped for success attending the means we employ, how firmly has it associated the cure of the disease with the specific nature of the remedy, and how easily do we admit as a fact, what the observation of another proves to be the mere expression of a coincidence? Every practitioner has his peculiar therapeutics, his favourite dogmas to support, and successes to boast; and when we reflect on the innumerable opinions which exist on all complicated subjects, where conclusions are founded on the materials of unrecorded individual experience, materials, which opportunity, education, and a thousand accidental circumstances are for ever modifying; we cannot, I think, be surprised that the results of experience in medicine, have not been more uniform and satisfactory. While anxious to impress upon the reader our conviction that unrecorded experience can never become the corner-stone of any science whatever, we admit that it has justly acquired, in a few rare instances, unusual relative value from the capacious intellect and retentive memory of some highly favoured minds.

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[*] "Appearances should always be described in terms which involve no opinion as to their causes. These are the objects of separate examination, and will be best understood if the facts are given fairly, without any dependence on what should yet be considered unknown; this rule is very essential where the facts are in a certain degree complicated."—*Dugald Stewart.*

Devoted as we have described our author to have been to the observation of facts, and divested as he was, from the very state of mind which actuated him to the course he so undeviatingly pursued, from all *preconceived opinions*, yet it was impossible that, during so long a period of time, his mind should not have been unequally impressed by the phenomena before him, and have unknowingly fixed some in its remembrance to the exclusion of others, instinctively allotting them a relative value, and arranging them to favour some *à priori* conclusions. Now no circumstances could possibly have been more favourable to test the value of experience, than those in which M. Louis was placed; yet, when at the close of his labours, he submitted *all* his facts to the unerring test of arithmetical analysis, *in every instance, were the à priori conclusions, which he had formed from the recollection of his own facts, found to be erroneous.** This most remarkable result ought to be indelibly engraven on the mind of every observer, and inspire a doubt as to the validity, not only of the experience of others, but of what he has hitherto perhaps considered almost infallible, *his own.*

If science consist of laws which are the expressions of facts, what course ought we to adopt for the purpose of arriving at those laws? Undoubtedly one which leads to the discovery of the relations of our facts, their differences, and the amount of those differences; for, a law is only a formula expressing in definite terms the value of a constant relation existing between a certain class of facts. This can only be effected by the *numerical or tabular method*, against which much ridicule has been directed, but on which every positive increase of our medical knowledge must be founded. M. Louis does not pretend to be its discoverer, but he is fairly entitled to the merit, of having been the first who has rigorously and extensively applied it to medicine.

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* "Quand je me suis fait une idée, *à priori*, des faits non encore analysés, j'ai toujours vu, après cette analyse, que mon idée, à priori, *était fausse.*" —Letter addressed to the Translator from the Author, June 23, 1834.

We shall briefly describe some of its most distinguishing features. The numerical analysis, requires in the first place, a sufficient number of carefully collected facts on the same subject; our object is then to classify their corresponding elements, so that not only are all the details of those facts successively submitted to the mind, but their relative frequency and value more easily estimated. To affect this, synoptical tables are indispensable, and their number necessarily proportionate to the complex nature of the facts we are analysing. Each organ, for instance, must have a separate column, which includes its description in every case we intend to make use of, adopting as near as possible similar terms for similar conditions.

This however alone would be very inefficient, as in a complicated structure like the lungs, where so many alterations may occur, a long series of minute descriptions would defy analysis from simple inspection; each organ therefore in its turn, becomes the subject of a separate table, which also consists of sub-divisions proportionably numerous as the object we examine is simple or complex. When we have thus arranged all the elements of our facts, we compare the results of our different columns with each other, having it thus in our power to view them in their various relations, while we may at pleasure refer particular facts to their respective observations, the same number accompanying all the details which are scattered through a variety of tables.

It will be remembered there is nothing arbitrary in this mode of proceeding, nothing left to individual caprice or pre-conception; for, in the arrangement of our tables we perform a purely mechanical operation, indiscriminately putting down all the facts in their respective columns, without any reference to the conclusions to which they ultimately tend. The correctness then, of any opinions we may form, is confirmed or rejected by a test over which we have no control and the evidence of which no well-regulated mind can resist, while not only the relative importance of many facts to which our attention had been less distinctly directed, or which we had wholly forgotten, is forced upon our consideration, but we are also led to the discovery of what we have only casually or incompletely described.

It will at once be perceived that certain laws, require for their elucidation, a much larger number of examples than others: where a hundred observations may in one case be sufficient, three times that number may be required under other circumstances. Indeed, as a general rule, the more complicated the objects we examine, the greater the number of facts necessary to establish our conclusions; for the same elements not being repeated in all, their relative aggregate number must vary, and their real value can only be estimated by tracing them through a larger number of analogous instances. Were we, for example, analysing 100 cases of pleurisy, the value of any symptom invariably observed would be considerable, and perhaps sufficiently established; but, were it only present twenty times out of that hundred, its real importance would be much less positive and require an additional number of facts for its determination.

For the appreciation of treatment, the necessity for numerous facts is peculiarly apparent, for though a hundred cases would be valuable evidence in favour of any one system of cure, it is only by comparison with others that its real efficacy can be decided. There are also other sources of fallacy which must not be overlooked; such as the severity of the disease, the age and sex of the patient, the state of health at the time, the natural duration of the affection, the epidemic influences which may be present, &c.; these are all questions to be solved before we can arrive at any positive results. From these rapid reflections, we may form some idea of the numerous difficulties which surround every question of therapeutics, and feel the necessity of exercising the greatest caution in ascribing any definite value to a remedy before we have well determined, by numerously analysed facts, the exact circumstances under which its action has proved to be beneficial.* No part of medical knowledge

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* Nothing eminent can be done in the prognostic and especially in the curative part of physic, without *an accurate and circumstantial history of diseases*; for how is it possible to foretell what will happen in a distemper, and proceed properly in the cure, if we are ignorant of the constant and fortuitous circumstances attending it, and the general progress of it from the beginning to the end, when nothing intervenes to obstruct its ordinary course, whether from mismanagement, accident, or otherwise?"—(Vide Sydenham. Swan's Ed. p. 9—note of the editor.)

"There will never be any great and considerable advance in the art of is more in want of some rigorous method of investigation than that of therapeutics, and this must ever be the case, until a system analogous to the one we have briefly described shall be generally adopted.

It is not our intention, in advocating the numerical method, to conceal for a moment its difficulties; these are great and numerous, but at the same time they can never form any solid argument against its utility, though they will necessarily curtail the number of its disciples. It is in fact, the only method in our power to pursue; it is the only control we can possess over assertion, the only test for opinion, and though not all we can wish, and no doubt will ever be found inadequate for the decision of many questions, yet its application to a sufficient number of facts must inevitably give us the most exact and best possible knowledge of those facts, and we would ask the individual who believes that science is founded upon facts, what more he would require? "And if, as an eloquent and distinguished writer observes, after having arrived at the termination of extensive labours, the hope of some important generalization has not been realized, our disappointment may find consolation in remembering that the discovery of *a single fact*, well observed, well described, and well appreciated, is unquestionably an advance in science, while ingenious and seducing theories,

healing, till all hypothesis and mechanical reasoning are out of vogue, and till men are come about again to the ancient method of pure experiment, and the common obvious reasoning entire from thence," &c. "*Not a single medicine* has been discovered by *hypothesis* since the introduction of them into physic, about 2000 years ago, nor have they let in the least light into the affair of administering medicines properly in particular circumstances, but rather served to bewilder us, to perplex practice, and create disputes, *which are never to be decided without having recourse to experience, the true test of opinions in physic.*" To *experience* the author attaches a very different idea from the general acceptation. He evidently refers to *recorded* experience, or the tabular method.—(Vide Bishop Brown's *Procedure of the Human Understanding*, p.p. 200—5.) Sydenham, in his preface, (p. 18,) says, "However, I do not deny, but that the physician ought to attend carefully to the method and medicine he uses in curing diseases, and *to set them down for the ease of his memory*, as well as the improvement of his knowledge, so that at length, after many years experience, he may fix upon such a method of curing any particular disease, as he need not in the least depart from."

which may be received with general enthusiasm, are often nothing more than a retrograding." But should not one general fact result, we are preparing materials which may be employed by those who succeed us, and if their accumulation and analysis will not ultimately extricate us from the labyrinth of uncertainty in which we are now straying, we may regard the discovery of truth as a vain and hopeless delusion.

There is no reason for the expectation on which many seem to rely, that a master-mind will arise and dispel the darkness which hitherto has defied our efforts to disperse, for "in the history of science," says Sir D. Brewster, "we see no example of an individual mind throwing itself far in advance of its contemporaries, but the achievements of intellectual power have ever been the result of combined exertion. The powers of analysis and combination are applied to the humbler labours of observation and experiment, and in the ordeal of rival inquiry truth is purified from error." Besides, from the clear and distinct contemplation of numerous facts, unthought of affinity is traced and unexpected results are discovered; results which genius could never have foreseen, or hypothesis embraced; for while their existence is thus demonstrated, all clue to their explanation seems lost.

How could we have ascertained that tubercles in any organ of the body, after the age of 15, involved their presence in the lungs? That phthisis almost invariably commences in the upper lobes? That it is more frequent in women than in men? That pneumonia is more easily resolved in a tuberculated than in a healthy lung? That simple bronchitis commences at the base of the lungs, pursuing a course inverse to that of phthisis? That chronic peritonitis indicates pulmonary tubercles? That acute affections, when free from complication, are generally confined to one side of the body, or one part of an organ if single? How could these, and many other results, be obtained but by rigorous observation and numerical analysis? And what theory have we ever heard of, which could have led us to the same conclusions? Had they been advanced as the fruits of speculation, how absurd some of them would have appeared, and their very announcement would have almost ensured their rejection; but founded as they are on the evidence of facts, our ignorance of the laws on which they depend is no bar to their practical utility. We know of no considerations more directly in support of the numerical method, or more encouraging to all who have the necessary opportunity and perseverance for its adoption, than this almost spontaneous creation of laws, which must have escaped the sagacity of reasoning, from the simple fact, that when demonstrated, they refuse to coalesce with any of our preconceived opinions.

But to arrive at any definite and characteristic knowledge of disease, it is not only necessary to have collected numerous observations and exposed them to a rigorous analysis, but to have instituted a comparison of that disease with all others with which it may be confounded, for the purpose of arriving at its specific and distinguishing features. The botanist not only collects a variety of plants, and by strict observation of their physical characters, groups them into classes and families, but by careful comparison seeks to determine those peculiarities by which they may be individually distinguished. The chemist, the comparative anatomist, follow precisely the same plan, and in medicine we see it exemplified in the ever varying classifications of nosologists. The hitherto imperfect state of our pathological knowledge, has necessarily included that of our classification; the latter can never be satisfactory until it may be regarded as the ultimate expression of our facts, rather than a prospective attempt at generalization. We would therefore particularly direct the reader's attention to the *comparative* results of the author, and when he reflects that the same process was pursued for their attainment as for those of the principal affection, he will be more sensible of their value and more capable of appreciating the time and labour comprehended in a few brief lines.

The picture we have drawn of the obstacles opposed to the successful application of the analytical method, is not we are aware calculated to ensure popularity, and many will return to the less laborious and less responsible opinion, that anything like certainty in medicine is chimerical; let it however be remembered, that "the difficulty of acquiring accurate knowledge, is an admonition of nature, which reminds man of his weakness, and of the caution he ought to observe," and for the encouragement of those who coincide in the views we have expressed, we would remark, that while the exertions of any one individual are comparatively insignificant, yet when united with those of others, their value would soon be apparent; and we feel convinced, that the labours of 100 medical men, strictly undertaken on the principles we have advocated, during a period of twelve months, would do more for the elucidation of many of our difficulties, than the uncertain materials of the last 2000 years. To justify this assertion we refer to the solitary labours of M. Louis, whose works will be increasingly appreciated with the progress of philosophical investigation, and in durability and value will long survive the ephemeral productions of more popular but theoretical writers.

The state of every department of science, the physical means in our power for the examination of disease, are all greatly in favour of success, and whenever we shall be in possession of a sufficient mass of unvarnished facts, there are no rational grounds to suppose, that facts in medicine will not, to a certain extent, effect what they have invariably done in every other branch of human knowledge to which they have been impartially applied.

It would be easy to enumerate the obstacles which oppose themselves to the progress of medicine; the want of experiment (though let it be recollected that observation and experiment differ rather in *degree* than in *kind*), and the consequent difficulty of tracing effects to their true causes and *vice versâ*; the presence of casual relations from which we cannot disencumber our facts; the influence of powers which modify the phenomena of disease, and aid or counteract the action of external agents; these must all moderate exaggerated expectation, and render a long series of observations a necessary preliminary to our arriving at positive results; but at the same time they cannot be adduced as arguments against the only method in our power to pursue with any rational hope of success, until the insufficiency of that method has been demonstrated by a fair and unprejudiced trial:—*this has not yet been done.*

It cannot be objected that the action of morbific influences upon the frame are in many instances not regulated by definite or *deducible* laws, and that the variations of diseases are such, as to defy classification and nullify the extension of our conclusions from one individual to another. On the contrary, all analogy is against such a supposition, and the little that has yet been done is equally in favour of an opposite inference. Is there no correspondence between the descriptions of Hippocrates and Aretœus, and what we are observing at the present moment? Has time, has climate, has civilization, have habits effaced one lineament from the likeness they have faithfully drawn? It is only when the objects of contemplation are few that individual varieties seem infinite, and as we never could have deduced the spherical figure of the earth, by regarding the inequalities of the surface we are immediately treading, but which from a higher elevation do not interfere with the grand outline characterising the whole, so in medicine, whenever large masses of facts can be distinctly unfolded to our view, the perplexing individual varieties will be merged in some leading predominant features, acting as guides to diagnosis, and forming the ground-work of therapeutical indication.

Admitting this to be the case, our labours and the number of observations required, cease to be indefinite, for such is the uniformity of nature, that many of the inductions of science stand as securely on the foundation of a comparatively few well observed facts, as they could do on the collected observations of every possible individual fact of which they are intended to be the expression.

We may then without any enthusiasm suppose that this in many instances would be the case in medicine, and that the comparative results of a very few individuals would give satisfactory solutions to questions which are now unceasingly re-examined and solved, to suit the views of every inquiring and innovating mind.

The last few years have been unusually fertile in the accumulation of accurately described facts, but scattered as they are over a wide surface, they are necessarily only partially known, and their aggregate value cannot be appreciated. An immense mass of knowledge is therefore constantly lying idle, which, if properly analysed, would frequently embody results by which much useless expenditure of time and talent would be avoided. The application of the numerical method to the *facts already in our possession*, would be an eminently useful undertaking; and by thus deducing the history of diseases, we should make an inventory* of the science, and be enabled to determine the amount and value of the materials we possess. Did we only succeed in demonstrating the poverty instead of the riches of medicine, we should at least have more accurate ideas of what we might trust to, and a more certain criterion of what in future may be expected.† Such a survey (Douglas) would advance medicine by the very act of its being made; the very stirring up of all its parts would conduce to their future productiveness, as the mere turning up of the soil augments its fertility and adds to the plenty of the ensuing harvest. Medicine, while it was surveyed, would be unintentionally enriched, and seeds that had long remained dormant in it, being brought to light, would immediately vegetate. What was already acquired would gain in value; and the line would be clear and defined from which others must depart to obtain fresh accessions.

Much benefit would we think result were individuals appointed for the special purpose of collecting the scattered information upon different subjects, and arranging it in the tabular form; habit would render the method less laborious, and point out some improvements in the process: ‡ individual labours would thus be constantly converging, and the attention of observers be particularly directed to those questions which required further elucidation. By this means, many investigations which every conscientious practitioner is compelled to undertake for his own satisfaction, would be rendered unnecessary; time would thus be saved, and exact observations more generally collected, not only because the labour of their analysis might be entrusted to others, but the advantages of the system would soon be so apparent, as of themselves to become sufficient inducements. The bigoted supporters of hypothesis would cease to perplex and bewilder, while all the intuitions of genius would find materials by which their truth or fallacy might be determined: we should at length leave those first principles which are now daily questioned and contested, and lay the foundation of future progress by defining the extent of the knowledge already in our possession. It is only (Herschel) by condensing, simplifying, and arranging, in the most lucid possible manner, the acquired knowledge of past generations, that those to come can be enabled to avail themselves to the full of the advanced point from which they will start.

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* "Few works of labour would be more conducive to farther advancement than a calendar resembling an inventory of the state of man, of all the inventions which are now extant, out of which doth naturally result a note, what things are yet held impossible or not invented." (Bacon.)

† This suggestion has been acted upon by M. Chaponière, in his inaugural thesis at Paris, June, 1832, entitled *Essai sur les Causes et le Siège des Nevralgies de la Face*. The author spent several months in collecting all the observations he could find in the extensive library of the school and from other sources. He could only avail himself of 253, having rejected more than 400, which contained little except the diagnosis, and often did not specify the sex. While regretting the few satisfactory conclusions to be drawn from his analysis, he attributed his failure entirely to the inexactitude of his materials, and not to the method. He would have infinitely preferred a smaller number of well observed facts.

See also a talented thesis by M. Marc d'Espine, of Geneva, on *Comment un Medicin doit il Penser? Comment doit il Agir?* Paris, 1833.

‡ Dr. Todd's book of analysis contains much valuable and ingenious information, and it is worthy attention, how far the labour may be

The author in his preface has sufficiently enlarged upon the plan of the work to render any additional remarks unnecessary. As translators we have neither altered or abridged the original, and have been as literal as the peculiarities of either language would admit. The nature of the subject necessarily excluded great choice or freedom of expression, and the frequent repetition, inevitable in the arrangement of such numerous details, involves a monotony of style which could only have been avoided, by increasing the size of the volume and more or less deviating from the rigorous nature of the system which M. Louis has followed. For the same reason, the difficulties of translation have been augmented, and while we claim the benefit of this consideration, the reader cannot be more dissatisfied with the manner in which our task has been performed than we are ourselves.

reduced by adopting the ideas of that ingenious writer. We recommend the work to the reader's perusal.

By omitting many of the observations and condensing the results, we might perhaps have rendered the work more popular, but at the same time we felt that this could not be done without lessening its real value. The pathology of phthisis has not as hitherto been limited to the description of the pulmonary organs, and we regard the results arising from the examination of the disease in a *general point* of view, and not merely as a *local* affection, as amongst the leading and most valuable features of the work.

The remarks following the individual observations, include much valuable information, and are peculiarly illustrative of the author's reasoning and method; by either omitting or curtailing them, numerous references would have been useless and assertions left unsupported, while the arrangement of the work permits the study of the principal results, independently of the facts on which they are founded.

After the accurate researches of Bayle and Laennec, M. Louis has wisely abstained from any lengthened and minute details on the pathology of the lungs; he has simply described the results of his own observation, and we think satisfactorily proved the dependence existing between the grey semi-transparent granulations and tubercles, which may now be regarded as occasional not necessary gradations of each other. He has also shown how easily many apparently opposite opinions on this much contested subject may be reconciled, when *all* the phenomena attending tubercular deposition are fairly appreciated. The existence of tubercles in the summit of the lungs, their gradual progress and softening from above downwards, the presence of excavations nearer the posterior than the anterior surface, the greater frequency of tubercles on the left than the right side, have never been so clearly demonstrated.

The observations on the state of the bronchial mucous membrane, and the influence of the contents of the tubercular excavations, are peculiarly interesting and must materially modify our ideas as to the agency of simple bronchitis in the production of phthisis.

The pathology of the *larynx* has never before been minutely described, and we think the author's investigations important, both from their application to diagnosis, and from their giving clearer ideas of what is really included by the term "laryngæal phthisis."

The connexion of pneumonia and pleurisy with pulmonary tubercles, the state of the pleuræ, the situation of the adhesions, their influence in causing thoracic pains, are all deserving attention. The comparative frequency of tubercles in different organs of the body,* and especially the fact that, after the age of 15, except in the lungs, they are generally everywhere at the same stage of development, form important data in any conjectures we may make as to the nature of the disease. They are powerful arguments in favour of the affection being *general*, and not depending on inflammation.

The pathology of the digestive tube forms perhaps the most valuable part of the volume, and is calculated to modify the usually received opinions expressed under the term "dyspeptic phthisis." The state of the liver contrasted with the usually healthy condition of the spleen, are facts of considerable interest, though in the present state of our knowledge they cannot be fully estimated.

The comparative examination of the glandular system with the mucous membranes, is particularly worthy the reader's attention, as it directly invalidates one of the most popular pathological doctrines of the day.

The chapter on the perforation of the lungs, contains by far the most exact information we possess on this important complication, and is a beautiful illustration of the necessity and value of pathological researches.

The description of the symptoms, their succession, duration, character, variations, and relative value, merit the practitioner's serious consideration, and should be studied in conjunction with the chapters on acute and latent phthisis. We would particularly point out the observations relative to the cough, expectoration, hæmoptysis, hectic, diarrhœa, and emaciation.

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* We would refer the reader to some highly ingenious and interesting remarks of Dr. Carswell on the *localization* of tubercles (*Cyclop. Pract. Med.*, vol. xxii. p. 261), tending to prove that there are other causes besides inflammation, which determine the presence of tuberculous matter in particular organs, and more frequently in one portion of an organ than another.

We have already expressed our opinion on the value of the chapter on *diagnosis*, and we believe, made some useful additions, by detailing the subsequent experience of the author.

The numerous and important additions we have appended to the chapter on the "*causes*" of phthisis, are the best proofs of our individual impression as to its importance. Dr. Clarke, in the preface (p. 20), to his valuable work on climate, says, "I am well satisfied that it is only by a knowledge of the *causes which lead to it*, and by directing our efforts to counteract them, *that we shall ever be able to diminish the ravages of consumption.*"

"The tubercular diathesis (p. 323), is also induced by the operation of external or accidental causes, which I admit to be the *most important part of the whole inquiry connected with consumption.*" "Had the labour and research that have been wasted in fruitless experiments to cure an irremediable condition of the lungs been directed to the discovery of the causes and nature of tuberculous disease, with the view of deducing rules for its prevention and treatment, consumption would be regarded in a light very different from that in which it is looked upon at the present period." Coinciding with the opinion expressed by this able writer, we have endeavoured to lay before the reader a large mass of circumstantial detail, which has never yet been approximated, and from the recent nature of a great proportion, is probably unknown to the majority of our readers. It cannot fail, we think, materially to modify many of our most generally received and apparently best established opinions, on the origin and nature of phthisis; and if in some of our deductions we have differed from the conclusions attempted to be drawn by the authors of the memoirs from which we have quoted, with respect to the *modus operandi* of some particular influences, that difference has not arisen from any depreciation of their facts, but from more closely associating them with other conclusions deducible from M. Louis' observations as to the nature and pathology of the disease.

Much misconception has hitherto prevailed on this most important subject, and for its satisfactory elucidation there is still great need of minute and patient investigation. No country possesses more means for the determination of the really active causes of phthisis than England, and it would be most desirable that government would enable qualified individuals to devote themselves to the examination of those influences, which so extensively react upon the general health. Accurate information on this subject would materially aid the progress of medicine as a curative art, and point out a prophylactic treatment, the effect of which on the prevalence of national disease, and more particularly of consumption, is incalculable.

In estimating the author's remarks on *treatment*, the reader must not forget the nature of the work or the method so rigorously pursued. Nothing is attempted to be advanced not strictly included in the facts before him, and M. Louis has purposely abstained from referring to his own peculiar views either in pathology or therapeutics, unless directly supported by the cases he is analysing. We have already pointed out that the *number* of the observations is insufficient to arrive at any general therapeutical deduction, and the conditions of a general hospital, combined with the advanced stage of the disease in the majority of instances, render the trial of any peculiar curative measures almost impossible. We should regret that this sterility of treatment should form any argument against the advantages of pathological research, for while it cannot be denied that pathology has *already* greatly rationalized the treatment of many diseases, let it be remembered, that there is no necessary or immediate connexion between the knowledge of morbid anatomy and curative indications. Disease includes far more than the physical alterations discovered after death, which often indeed fail to explain many of the functional derangements observed during life; but the knowledge, which in the majority of instances is in our power, of what organs are uniformly or secondarily affected under certain circumstances, enables us more clearly to define the essential pathological characters of particular affections, and *after* we are in possession of this knowledge, to apply our remedies under the most favourable conditions by which their real efficacy may be determined. Pathology is therefore the predecessor rather than the contemporary of successful therapeutics; without its assistance the latter has no other hopes of advancement than the blind chances of empirical experiment: the value of these chances, has, perhaps, in the minds of some, been decided by the experience of the last 2000 years.

But while thus insisting on the necessary *ultimate* influence of pathology on treatment, it is evident that we cannot defer the application of remedies, until our knowledge of disease is complete. Treatment must be tried, whatever obscurity may exist as to the nature of the affection. The absence of certain data from which more rational indications might be drawn, must never parley the exertion of our talents and ingenuity in the discovery and application of remedial measures; we should always endeavour, as far as facts will permit, to arrive at some probable conclusions; and precisely in proportion as our remedies have failed, we are justified in exceeding the bounds of strict logical induction, in the research of other means by which disease may be more successfully combated. It is under this impression that we regret the author has not deduced some general conclusions as to the nature and treatment of phthisis, and in the imperfect attempt we have made to supply the deficiency, our remarks are confined to a few inferential inductions founded on a review of its pathology and causes, and to the simple exposition of those means which have been most generally vaunted in its cure; rather wishing to afford materials to the judgment of the reader, than to bias him by a selection of what would simply be the expression of our own individual opinion.

A popular and too often professional belief that phthisis is incurable, has much interfered with any extensive and well combined efforts for its counter-action; but surely, the moment when we are just beginning to arrive at some accurate ideas as to its causes, its nature, and its seat, is ill adapted to justify an assumption which has hitherto been but the avowal of our ignorance. The increased information we possess, loudly calls for fresh opportunities for attempting its cure, and to no object could national or individual bounty be more rationally or usefully devoted, than in providing means by which the powers of medicine might be advantageously opposed, to what may be undoubtedly considered, as the heaviest penalty which disease exacts from civilized man.

When we reflect that from one-fourth to one-sixth of our bills of mortality, consists of the victims to phthisis, and look round on the numerous institutions this country can boast for a variety of very secondary objects, it does indeed seem passing strange, that no systematic attempt has ever been made for diminishing the ravages of consumption. Our Small Pox, our Lock, our Foundling Hospitals, are far less imperatively needed than the establishment of an institution specially adapted for the cure of phthisis: the conditions which it ought to include are quite incompatible with those existing in our ordinary hospitals, and we do not hesitate to say, that unless the *general* influences by which the patient is surrounded are regulated, as well as the application of particular remedies, no rigorous or satisfactory evidence of the powers of medicine in this disease, can ever be obtained.

We have no intention of entering into any details on this interesting subject, but we submit the propriety of establishing public institutions expressly for the cure of consumption, as strongly deserving the attention both of the medical profession and of the country at large.

In our remarks on treatment, we have insisted upon the immense importance of prophylactic measures, and to encourage future perseverance, let us remember that we are still in the infancy of medicine, still standing on the shore with the boundless ocean of undiscovered truth in our view ; that the infinite capabilities of science still unfold an inexhaustible field for the exercise of our finite comprehension ; we ought therefore to shrink from attaching bounds to our future progress, recollecting that ignorance is the only known limit to our mental vision, and that in "whatever state of knowledge we may conceive man to be placed, his progress towards a yet higher state need never fear a check, but must continue till the last existence of society." Medicine is not excluded from this encouraging prospect, and we cannot help anticipating that the cure and the comparative extinction of phthisis, are among the benefits its future progress will confer upon mankind.*

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* "It may not be too much to hope," says Dr. Carswell, "that by means of a more intimate knowledge of organic chemistry, we may yet be able to detect in the mucous secretions or in the blood, those changes which indicate the existence of the tubercular diathesis, and thus perhaps

In the fourth volume of the *Examen. des Doctrines Médicales*, by M. Broussais, recently published, 135 pages are devoted to the examination of the present treatise and other works of our author. The unexpected length of the preceding remarks, and the fact that M. Louis has himself published what we believe will be considered by every impartial mind, a victorious reply to the illiberal and prejudiced criticisms of M. Broussais, forbids and indeed renders unnecessary at the present moment, more than a few brief observations. *

The most fatal inroads upon the doctrine of irritation, have arisen from the labours of those whose impartial observation and accuracy of description give them the highest claims to our confidence. The two fundamental dogmas of the system of M. B———, viz. that inflammation, of some kind or other, is the active cause of all morbid alterations, and that glandular disease is consecutive to that of the mucous membranes, have been fatally invalidated by their comparison with accurately observed facts.

The first we have always regarded as one of those propositions most easily supported, but most difficult to prove; and it is only by an indefinite latitude of expression, which admits of being ingeniously moulded into accordance with our theoretical wants, that so much has been written in the defence of an idea, which too often, when practically applied, has no other foundation than our speculative belief in its existence. By inflammation we must either include a certain combination of essential conditions, or the term must be regarded as destitute of all scientific importance; to employ it as the expression of whatever we observe contrary to what results from a state of health, is to make it the pliant tool of assertion, but a mere bugbear in scientific investigation. It cannot be denied that organic and

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be led to discover a remedy for the disease before it has effected its localization, and produced changes in themselves incurable." The same pathologist observes, that "pathological anatomy has, perhaps, never afforded more conclusive evidence in proof of the curability of a disease, than it has in that of tubercular phthisis."

* Vide *Examen. de l'Examen. de M. Broussais, relativement à la Phthisie et à l'Affection Typhoide*, par E. Ch. A Louis. Paris, 1834.

constitutional changes are constantly occurring without a trace of those phenomena, usually signified by the term inflammation; and to argue on the presence of a something the existence of which could never have been suspected without the creative powers of a theory, is to reduce facts to the bondage of opinion, and make their comparative aptitude for the support of our own preconceptions, the standard of their value.

Much benefit has resulted, we freely admit, from the researches of M. B———, more particularly from his investigations of those latent forms of inflammation, previously so imperfectly known and irrationally treated; but while sensible of his merits and charmed with the genius displayed in his writings, it is impossible not to trace the warpings of preconceived opinions, and feel that we are rather persuaded by the talents and ingenious hypothesis of the writer, than the cool and impartial deductions of philosophical inquiry.

The dependance of glandular disease on the state of the mucous membranes, is still more tangibly opposed to the simple evidence of observation; and we think, totally irreconcilable with the varied and numerous facts adduced in the course of this volume. That the alterations of the one may be occasionally depending on, and consecutive to those of the other, no one will deny, but *as a law of the system*, it cannot be assented to, until supported by more satisfactory proof than the genius of its inventor.

The acrimonious and unfair spirit characterising the criticisms of M. B———, cannot but be regretted. He has alternately impeached the accuracy and veracity of M. Louis, while he acknowledges him as "*de bonne foi*," when his conclusions tend in the least to coincide with his own. In one page he speaks of the work as deserving to be read, and in the next styles it as destitute of either pathological, therapeutical, or physiological merit; in short, his remarks bear the stamp of a foiled and disappointed theorist, and exhibit the workings of a powerful mind in the defence of a system it had toiled to erect, but which is daily tottering under the relentless battery of facts.

While thus depreciating the tone of prejudiced and illiberal feeling which pervades the strictures of M. B———, we are not anxious about their effects on the volume before us; its merits are quite independent of individual opinion, it will rise in estimation and shed increasing lustre on its author, in proportion as hypothesis becomes subservient to the evidence of impartial and accurate observation.*

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* We particularly recommend the reply of M. Louis to the reader's attention, as affording a striking contrast in its cool and searching reasoning, to the impetuous and contradictory efforts of wounded self-love. To the unfounded and absurd allegation that M. L. was the obsequious follower of Laennec, he replies, "What, (*Op. Cit.* p. 5.) have I devoted seven years of my life to discover in observation nothing more than a means of attacking the opinions of M. Broussais? Indeed I was actuated by a higher motive. M. B—— was scarcely thought of, and I cared little to what results observation would one day conduct me, confident that when I did methodically investigate the facts I had collected, they would lead me to *true results*, which were alone important." In reply to the insinuations of M. B—— against his probity, he remarks with all the consciousness of innocence and the force of truth, "Let the reader judge, if one who for nearly seven years renounced the practice of medicine to devote himself to the observation of facts, let him say whether this individual was guided by the desire to invent? Whether these seven years of study ought not for ever to have sheltered him from such a suspicion? The reader may regret that he has done *so little* in so long a period, but assuredly he will not *impeach his integrity*, he will not imagine that he has been actuated by other than conscientious motives?"

TRANSLATOR.

Bath, *Feb.*, 1835.

AUTHOR'S PREFACE.

The world will be perhaps surprised at fresh researches upon phthisis, after the still recent labours of Bayle and of Laennec. These pathologists have indeed so accurately described the leading symptoms and characteristic lesion of this disease, that little appears left for their successors to accomplish, and it would seem useless to re-handle a subject so skilfully treated, were it only capable of being studied under the same point of view; but the plan we have pursued in the present work is different.

Very shortly after we had exclusively devoted ourselves to observation, we ascertained that in the progress of phthisis, as in that of other chronic diseases, the greater number of the functions are remarkably disturbed; that the organs which discharge them are more or less profoundly affected, and that with regard to both these points the history of the disease was very incomplete, or almost wholly neglected; the hope of supplying this deficiency was the source of our present undertaking. Numerous facts early indicated to us, that the history of phthisis could be elucidated by new observations, and this conviction was an additional motive for persevering in those investigations, of which the volume now presented to the reader is the result.

In order to secure the greatest possible utility to our labours, we have observed phthisical patients with the same care we employed in collecting the history of those attacked by a disease (affection typhöide) still little known; we have interrogated *all* the functions, and reverted as far as possible to their respective derangements, previous to our examination of the patient; and after death we have studied all the viscera with equal attention. This method was tedious, but simple and certain; it could not but lead to exact results, and this impression has rendered light the fatigue it necessarily included.

Fully convinced of the importance of *negative* facts, and recollecting the embarrassment and regrets of Morgagni, when, on examining the observations of Walsalva, he found no mention of well attested facts of this description, we have collected them with as much care as the most interesting of our affirmative ones; we have even noted down indiscriminately whatever the patients related respecting the alteration of their health at any period of their lives, provided always, that the circumstances of the recital gave evidence of its truth:—we left to future opportunities, and the post-mortem examination, the task of pointing out the facts to be retained or suppressed. It is easy to form a just idea of the importance of negative facts, if we reflect that organs, when their structure is extensively modified, frequently give rise to no appreciable symptoms, and that, if this absence of symptoms has not been expressly specified, we cannot form a proper estimate of the value of post-mortem appearances. Hence also the necessity of examining *all* the functions, whether apparently disturbed in their exercise or not:—another method may suffice for the verification of what observers have already remarked, but it can conduct us no farther.

To remove all doubts as to the value of our notes, we have always mentioned the state of the patient's intellectual powers; quite decided, when we had to investigate facts anterior to the period of our own observation, only to rely on those patients, whose faculties and more especially whose memory possessed a certain degree of development.

We have paid great attention to the mode of *questioning* invalids, for there are certain questions which almost inevitably dictate the answer. As, for instance, if we wished to discover whether the patient experienced pain, or any uneasy sensation on either side of the chest, we mentioned first the side where we supposed the pain did not exist; if he then indicated the other side as the seat of his sufferings, we regarded the fact as certain, and entered it as such. For the determination of dates, important to ascertain, we frequently recurred to the subject, asking the patient, not, if he had experienced such a symptom from such a time, but how long he had experienced it. It is evident, that to the first question a patient, annoyed or weary, might answer indifferently yes or no, while at the second he is compelled to reflect, and by a mere hap-hazard reply cannot so easily lead into error.

After death, we have described with all the precision of which we are capable, the situation, the form, the colour, the consistence, and the thickness of organs; in a word, every alteration of tissue which they might present. To effect this, we have never examined the viscera, with the exception of the brain, in their natural connexions; for in this situation they are generally insufficiently illuminated, and in the case of organs which are membranous, thin, and compound in their structure, as the stomach and intestines, their thickness and consistence cannot be properly appreciated, and it is also difficult to examine the whole of their extent; at the same time many alterations such as small superficial ulcerations, almost inevitably escape our notice. In these cases, to see clearly, we must not only remove the parts, but free them by repeated washings from the various substances which adhere to them, and, as was almost constantly our practice, immerse them for an hour or two in water.

The history of the softening of the brain, is alone sufficient to point out the importance of examining the different degrees of consistence of our organs. It is well known that the brain may be softened, and almost liquefied, without any very sensible change of colour, so that were we to limit the examination of this viscus to this single circumstance, our deductions would necessarily be erroneous. The same remark is applicable to mucous membranes, which, although retaining their natural paleness, we sometimes find as soft as mucus.

It was from applying these principles to ourselves, that we thought it right to relinquish with respect to certain points, the observations we collected at the close of 1821 and the commencement of 1822. At that period we frequently neglected to remark the different degrees of consistence of the mucous membranes, nor had we directed our attention to certain pathological states of the stomach:—by using observations thus incompletely detailed, we should certainly have fallen into error and announced results which were fallacious. Lastly, whenever an observation has appeared, in any respect, incomplete or destitute of that accuracy which we believe to be necessary, we have set it aside: this explains why our sum-totals are not always founded upon the same number of facts.

The *thickening* of tissues is also one of the circumstances most important to notice, and is sometimes the only appreciable organic lesion; as in certain cases of hypertrophy of the heart and the thickening of the sub-mucous layer of the large intestine, which we shall hereafter describe.

Redness, considered by itself, offers much less interest, although many among the most enlightened physicians, confine their descriptions of membranous organs to the indications of their colour. Redness, in fact, may depend upon various causes, resulting either from inflammation, or even the effects of simple congestion towards the close of life. Of this last assertion we have the proof in certain cases of sudden death occurring to individuals, who, a few moments before, appeared in perfect health, and yet whose gastro-intestinal mucous membrane was more or less red, but at the same time neither thickened or softened; while in the majority of cases, where the symptoms of inflammation of this membrane have been prominent, there is redness, thickening, and softening. It follows therefore that redness signifies nothing, unless accompanied with some alteration in the consistence and thickness of tissues, and where no such change is discoverable, it is only by the aid of the symptoms, that the cause of the redness can possibly be conjectured. Let us add, for the purpose of better illustrating the importance of the alterations we are referring to, that after death, redness may disappear, while the thickening and softening of our tissues are unaffected. *

The observations on which our researches are founded, were collected at the hospital of La Charité, commencing from the last three months of 1821. Since that period, we have noted down the history of all the patients admitted into the wards of M. Chomel, containing forty-eight beds, equally distributed between men and women. The same plan has been pursued in the description of every case, and as the exactness necessary for such a task did not appear compatible with the practice of medicine, the latter was for a time at least, relinquished. We have since regularly passed from three to four and sometimes five hours a day at the hospital, devoting at least two hours to each post-mortem examination; and although habit has necessarily familiarised us with anatomical researches, we give up at the present moment, as much time as we did two years ago, fully persuaded, that to observe *well*, we must not observe *hastily;* that the only means to rectify inevitable errors, is continually to re-examine, and consequently always to observe an object however familiar, as if presented to us for the first time.

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* This remark when extended to *softening*, is too absolute. There can be no doubt that if softening like redness, cannot be *removed* after death, it may under certain circumstances be either produced or increased. (Translator.)

By comparing our latest observations with those formerly collected, we have been enabled to convince ourselves of the advantages that would result, at least when there is any intention of publishing, from having observed at an age when we can estimate things at their real value; when experience has already warned us against every species of illusion and theory, and where the first mental want is that of *truth.* Study was not less attractive to us formerly than it is at present, but a theory presented with art, was not without its allurements; precision was less studied, and we devoted less time to the determination of facts. These mental tendencies so contrary to sound observation, were at once depending on deficient experience and the spirit of the age; very few escaped their influence, and, if for no other reason, we ought to place less reliance on the labours of young observers, and especially avoid devolving the task of observation exclusively upon them. Independently of the disadvantages of age, it may be also said with truth, that we cannot observe for others with the same zeal, the same assiduity, the same precision, that we would employ for ourselves. The natural philosopher who wishes to advance the progress of science, does he let another make his experiments? The chymist, does he confide the operation of analysis to one just entering upon his career? And if, as indeed is the case, there is complete analogy between the physician who observes, the natural philosopher who experiments, and the chymist who analyses, why should they adopt a different method in their inquiries? It is not enough to know that individual observations are necessary in medicine, unless we are at the same time convinced, that to render them valuable, much zeal, much time, and much practice, are required. Practice we repeat, for to collect observations is a *trade*, and like all other trades, must be learned and cannot be divined.

The reader will pardon us perhaps, for having insisted so much on the care we have bestowed on the collection of our facts and upon the distrust with which part of those daily published ought to be received, if he reflects, that *the edifice of medicine reposes entirely upon facts, and that truth cannot be elicited, but from those which have been well and completely observed.* Then, and then only, we shall be enabled to discover, in a series of observations, the data of a problem consisting of many quantities whose value is unknown; and since in mathematics, this value does not vary with the individuals who engage in the solution of the problem, we ought also in medicine to arrive at identical results, by the analysis of the same observations; always admitting, that where a mind of ordinary power arrives at few general deductions, one of superior capacity, from its power of examining the particular facts under more varied aspects, will discover a greater number; but it is inevitable that exact observations, studied under the same point of view, must conduct every one who attentively considers them, to identical conclusions. All is not then obscure or uncertain in medicine, when the observations which guide us are exact; but what results can be obtained from the consideration of facts which are doubtful, incomplete, or false?

Besides, the means we employ to arrive at the solution of the problem, are in no degree arbitrary or uncertain; they consist almost wholly in bringing together the symptoms which reveal the disturbance of one and the same function, and in comparing those symptoms with the state of the organ on which the function depended. If the latter be more or less seriously affected, and its lesion either by its character or extent, explains the derangement of its function, we are then entitled to regard it as the cause of the symptoms observed; if, on the contrary, the function has been deranged while the organ has not undergone any perceptible alteration, we then refer the disturbance either to a sympathetic influence, or to some constitutional peculiarity. Anorexia, for example, is one of the symptoms of gastritis, yet since it is frequently observed in phthisical patients when the mucous membrane of the stomach offers no sensible lesion, we are forced to conclude that under these circumstances it is sympathetic, or depending on some general influence, as for instance, the febrile movement; a function may therefore be deranged for a considerable time, while no alteration of structure in the organ on which it depends, can be observed.

Nothing is more simple, but at the same time nothing is more fatiguing than the method we have described; for, what numerous tables, what separate analysis does it not require? It is almost entirely to this purely mechanical labour, that we have reduced our operations on the facts we have collected, persuaded that the most faithful analysis of the greatest possible number of exact observations upon a given subject, constitutes the greatest value of a work.

Those of which we now offer the result are in number 123. Fifty among them have been scattered through the course of the work as witnesses in our favour; and since we believe that the history of a patient is not really complete, unless it gives at least a succinct idea of the condition of all the functions, we have described them as briefly as possible, with the state of suffering or otherwise of the different organs. This has appeared to us the more indispensable, from the fact, that nearly all our observations are examples of complications more or less numerous, and that a just idea of their mutual influence was necessary. Had we confined ourselves to a single class of symptoms, we must also, in the description of organic lesions, have been reduced to a single class of organs; but such a method would have deprived our observations of part of the interest they might otherwise present, and they might also have been considered as negligently collected. We may add, that our researches, founded as they are on a large number of facts, would frequently have appeared wanting in solidity, had the details of each observation been limited to a single point.

To avoid unnecessary fatigue to the reader, we have arranged all our cases on the same plan. In the first section we expose the state of the functions previous to the entrance of the patient into the hospital, reckoning from the day when he ceased to be in perfect health. In the next division we mention what remarkable features the symptoms presented at the moment of our seeing the patient for the first time, and afterwards, in as many separate sections, we continue the history of each function until death. Lastly, as regards the anatomical lesions, we note whatever the exterior of the body, the head, the neck, the chest, and the abdomen present of importance. In this manner, confusion is prevented, each object has a separate place, and if at any time we wish to recur to the symptoms which belong to any particular lesion. it is only necessary to read a single section.

Impossible as it is to give all the observations, we have pursued in the exposition of our facts, a rather different method from what we should have adopted under any other circumstances. We have divided our work into two parts, and since anatomy is the strongest support of pathology, we have commenced the analysis of our facts, by a general description of the visceral lesions. Those of the lungs, bronchi, pleuræ, trachea, larynx, and epiglottis, are successively described; then those of the digestive apparatus, &c. &c.; and, as it was important not only to notice all the morbid alterations, but to determine if those which existed elsewhere than in the lungs were peculiar to phthisis, we have investigated the condition of the organs in cases fatal from various other chronic diseases whose histories we have collected; we have compared facts with each other, and from this additional labour has resulted the knowledge of some general principles not perhaps without importance. We have also mentioned the proportion in which each of the morbid changes was observed; so that our work may be considered, in all its parts, a kind of statistic of phthisis.

After the description of almost every organic alteration, we have examined the causes to which it might have been attributed.

The second part is reserved for the history of the symptoms. We have first described those occurring in phthisis when free from all complication, and we have insisted particularly upon the diagnosis in the early periods of the disease; we have then detailed the symptoms which accompany ulcerations of the epiglottis, larynx, and trachea; those which belong to different modifications of the mucous membrane of the stomach, &c. &c.; the anomalies which phthisis presents in its acute or latent form, and the accident resulting from the perforation of the pulmonary parenchyma, in consequence of tubercular softening forming a communication with the cavity of the pleuræ. We have also related several cases of sudden death, and endeavoured by the comparison of facts, to estimate the value of some of the causes to which the development of pulmonary tubercles is attributed. Finally, we have briefly pointed out the treatment of the cases whose analysis we have given.

Our first intention was not to extend our researches beyond the bounds of a memoir, and to detail a very limited number of individual facts ; but by pursuing this plan, many of our propositions would have remained without proof, and we should have been deficient in the most essential point for one who writes upon any subject whatever. It is by the advice of M. Chomel that we have been induced to extend the plan of our researches ; his assistance has been available in many other ways, for the compilation of the present volume, and we feel happy in giving this public testimony of our gratitude.

Finally, and we say it with the consciousness of deep conviction, though a more skilful hand would perhaps have thrown greater interest over the long series of lesions and symptoms we have described, yet it could not have employed greater accuracy or impartiality.

END OF AUTHOR'S PREFACE.

PATHOLOGICAL RESEARCHES

ON

PHTHISIS.

DR. CLARKE ON PHTHISIS.

"We cannot conclude this section without expressing our obligations to M. Louis, the able author of the 'Traité de la Phthisie.' We are so much indebted to this zealous and indefatigable physician for all our more precise knowledge of the pathological anatomy of Phthisis, that we think it due to him to acknowledge the great assistance we have derived from his researches in the composition of this article; and we beg to refer our readers for more full information to his Treatise, as they will not only find therein the best account of the morbid anatomy and symptoms of the disease, but will moreover learn to admire, and perhaps to imitate, the industry, the zeal, and the scrupulous veracity, of this most accurate and philosophical observer."—*Cyclop. Pract. Med.* Part xxii. p. 306.

"M. Louis certainly ranks as the first physician of France, and probably of Europe."—*Dr. Marshall Hall.*

"We consider the members of the profession in this country under great obligations to Dr. Cowan for the present which he has made to them of M. Louis's work in an English dress, and we are happy to think that the work has fortunately fallen into the hands of one well qualified, both by his medical knowledge and his literary acquirements, to do it justice. It is evident, from the numerous and important additions which Dr. Cowan has made to the original, as well as from the general character of his translation, and the clear and philosophical views announced in his excellent Preface, that Dr. Cowan was well qualified to undertake the important task which he has here executed."—*Brit. & For. Med. Review,* Jan. 1836.

ANATOMICAL

AND

PATHOLOGICAL RESEARCHES

ON PHTHISIS.

PART I.

PATHOLOGICAL ANATOMY.

In this first division we shall successively describe all the lesions observed in the different apparatuses of our organs, and subjoin some considerations on their causes.

CHAPTER I.

RESPIRATORY ORGANS.

Section I.—*Of the Lungs.*

2. Bayle divided phthisis into as many kinds as there were organic lesions of the lungs capable, according to him, of causing death. He admitted a tuberculous, a granulated, a cancerous, a melanotic, a calculous, and an ulcerous phthisis. M. Laennec thinks, on the other hand, that there exists but one species, the tuberculous phthisis, *i. e.* but one organic alteration of the lungs, which can terminate in death, by passing through all the stages of *inanition* (depérissement) and with all the symptoms which belong to phthisis. During more than three years,* that we have carefully collected the history of all the

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* The number of patients admitted into the wards during the above-mentioned period was 1960, of which 358 died. Out of these last, 127

patients admitted into the hospital of La Charité, in the service of M. Chomel, we have not observed *a single subject dead from phthisis*, whose lungs did not present, as the principal lesion, a greater or less number of tuberculous excavations, tubercles, or of grey semi-transparent granulations; so that our own observations strengthen those of M. Laennec, and with us as with him, "The existence of tubercles in the lungs is the *cause*, and constitutes the special character, of phthisis."*

3. Tubercles are, as we know, tumours of a dull yellowish white aspect, of variable consistence, which soften after a certain time, empty themselves into the bronchial tubes, and give rise to excavations more or less considerable.

4. Almost invariably they were more numerous, larger, more advanced in their development at the summit, than at the base of the lungs; for in the 123 cases of phthisis we are going to analyse, we have met with only two exceptions to this rule.—(Vide *Observ.* 33.)

5. They were associated with a production of a very different appearance, we mean those small, homogeneous, shining bodies, of marked consistence, more or less rounded, and varying in size from a pea to that of a millet-seed; bodies which

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were cases of phthisis, and in forty others who died of various diseases, tubercles were found in the lungs;—that is, in nearly one-half. In one-third they constituted the principal lesion. V. Rapport, fait á l'Academie Royale de Médecine, on this work by Chomel, Royer Collard, and Bourdois.—*Revue Medicale*, Sept. 1825. (Translator.)

* This proposition is flatly denied by M. Broussais, who asserts that he has *frequently* seen cases of *consumption* from chronic inflammation and suppuration of the lungs, where *no trace of tubercles* existed after death. He confidently refers to ten cases detailed in his course of lectures during the winter of 1833. This mode of reasoning merely says, that M. B. includes more under the term *phthisis* than the author; though many of the *general symptoms* of phthisis may and no doubt were present in the cases detailed by M. B., we do not hesitate to say, that their progress would have distinctly distinguished them, from those attending true phthisis.—Vide *Examen des Doctrines Medicales*, par F. J. V. Broussais, 3d. edit. vol. v. p. 336.

The following assertion of P. Desault, of Bourdeaux, in an essay on phthisis, published in 1733, is remarkable. He says, that an ulcer of the lungs is merely *an effect* and not *a cause*; and that *tubercles* constitute *the essence of consumption*, being *generally* anterior to *hæmoptysis*. He also notices the frequent affection of the liver. (Translator).

have been designated by the name of "grey semi-transparent granulations." (Granulations grises demi-transparentes.)*

These granulations form, according to the beautiful researches of Laennec, the first stage of tubercles, through which the latter must pass before assuming those characters which are peculiar to them. As in the case of tubercles, we have found them larger, more numerous at the apex than at the base of the lungs, and limited to the former, if not existing in the whole of their extent. At a certain period of their development they present a yellow opaque point at the centre, this point was large in proportion as the granulations were nearer the summit of the lungs, and in examining these viscera from below upwards, they were generally seen in the following order:—1st, grey semi-transparent granulations; 2dly, granulations less clear and yellow towards the centre, and 3dly, granulations of a yellowish white in their whole extent; that is, completely tuberculous. These last were in the majority of cases the only ones observed at the summit of the lungs.

6. It was rare to find either tubercles or the grey semi-transparent granulations existing singly in the lungs. The first of these cases we have only met with twice. The second we have observed in five subjects, though even here there were some granulations more or less milky and yellow in the centre.

These facts appear to us incontestably to establish the transformation of the grey semi-transparent granulations into tuberculous matter.

7. The granulations, usually scattered, in many cases formed small groups or even masses of an irregular figure, and very variable dimensions.

Most frequently they existed at a certain distance from the pleura. At other times (in about one-third of the cases) they were equally numerous immediately beneath this membrane, and in the more central parts of the organ. We have even met with an instance in which the lung remaining free from all adhesions, they were more numerous at the surface than any where else.—(*Obs.* 17.) Thus arranged, they gave a modulated appearance to the lung. Having passed into the tuberculous state and then become softened, they were converted into abscesses which formed an elevation, more or less considerable, externally, occasionally discharging their contents into the cavity of the pleuræ, and producing the accidents we shall enlarge upon in our chapter on the perforation of the lungs.

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* *Miliary Granulations of Laennec.* Vide *Dr. Forbes' Translation*, p. 273. We adapt our references to this work, instead of the original, as the former is perhaps more generally in the hands of the English reader, and its value is much increased by Dr. F.'s very able and extensive additions. (Translator.)

8. The time requisite to enable the granulations to acquire the volume of a small pea, (the size most frequently observed) is, no doubt, very subject to variation, and almost always impossible to determine. Yet, some cases of acute phthisis seem to indicate, that their development is sometimes very rapid, and that they can acquire the volume mentioned in so short a time as three or four weeks. On the other hand, a tolerably numerous series of observations inclines us to the opinion that they may remain very small for a long period after their formation. Thus, we have met many individuals, who coughed continually, had been subject to hæmoptysis for many years, &c. and yet who presented no other lesion of the pulmonary parenchyma than the grey granulations, of the volume already indicated, or even much smaller.

9. This grey semi-transparent matter presented itself also under another form; it was frequently in irregular masses, sometimes of considerable volume, from about one to two or three cubic inches.—(*Obs.* 29.) As in those cases where it assumed the rounded form, it was shining, homogeneous, and without distinguishable structure. In many subjects, in the middle of these masses, a variable number of miliary points of a dull yellowish white, in every respect tuberculous, could be observed. In others, the transformation was almost complete, and some small portions of grey substance in the midst of a mass of tuberculous matter were alone discoverable.

Thus, whether the grey matter assumed the form of granulations or of irregular masses, more or less considerable, it became sooner or later transformed into tubercle.

10. We have met, though rarely, the grey matter in other organs; and in them, as in the lungs, it has appeared susceptible of tubercular transformation. We will mention in support of this, the case of the 7th Observation, where we found, deposited in the great epiploon and mesicolon in the midst of a

large quantity of tuberculous matter, masses more or less voluminous of grey semi-transparent substance. Is it not probable that it would eventually have undergone the tuberculous transformation?*

11. Laennec has observed, that we do not find vessels, or at least very rarely, in the masses of grey matter. We have frequently verified the truth of this remark by the aid of injections.—(*Obs.* 29.)

12. Surrounding tuberculous excavations there was found almost constantly, a certain quantity of this same grey matter It also frequently inclosed on all sides some semi-opaques (louches) and yellowish granulations, forming them into a compact mass more or less considerable. In this way we have seen it in three subjects affect a very singular arrangement, and present itself under the form of zones. These were three in number, parallel, situated horizontally, occupying the whole depth of the lungs, were one inch in height, and separated from each other by a layer of pulmonary tissue of similar dimensions.—(*Obs.* 46.)

As in the case of granulations, the grey matter in form of masses, was frequently found near the surface of the lungs, or immediately under the pleuræ.—(*Obs.* 29, 35.)

13. In those instances where the progress of phthisis was rapid, it might be suspected that the tuberculous matter had not been the result of the transformation of the grey matter, but that it was developed primitively under the form of tubercle, the necessary time for this transformation appearing to have been wanting. Such would be considered the case of a young girl, who forms the subject of the 35th Observation, where we

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* The identity of the grey semi-transparent granulations with tubercle, has been a source of much discussion. Bayle thought them cartilaginous—Andral (*Clin. Med.* vol. iii. p. 5,) indurated pulmonary vesicles—Chomel (*Dic. de Med.* vol. x. Article "Granulation") says, they are *not* tubercles, but withholds his reasons. Bouilland seems to agree with *Andral, Lombard* entertains a very similar opinion, &c. We only mention these hypotheses to attract the reader's attention to the evidence adduced by our author; it is we think conclusive, and coupled with other facts distributed throughout this volume, demonstrate some *necessary* relation between these two alterations, as strongly, as it is in the power of facts to witness in favour of two things which are not *absolutely* identical. (Translator.)

found a large mass of tuberculous matter, softened, and in part excavated, on the thirty-fifth day of the disease. It is but right however to remark, that in the case before us, there were in the same lung both tuberculous and grey matter; and in many other cases, where the progress of the affection was rapid, (*Obs.* 36,) we found in the centre of one of the upper lobes, a certain quantity of grey matter, almost entirely transformed into softened tubercle; and although it might have developed itself consecutively to the tuberculous matter, a contrary supposition is not less probable; so that doubts as to the real course of the affection in these different instances must necessarily be entertained. It is, however, on the whole, more probable that tubercle is sometimes developed primitively, as such, in the lungs; for, with only two exceptions, it has always appeared to us to affect this mode of production in the other organs.

14. We have also found in the lungs of phthisical patients, and in them exclusively, a substance less firm, more transparent than the one we have just described, of a dirty red colour, or sometimes nearly colourless, presenting more or less the appearance of jelly.—(*Obs.* 2.) This substance, which Laennec has described, has never presented tuberculous particles. Is its nature identical with the grey semi-transparent matter? *

15. Almost invariably, tubercles existed more or less numerously in both lungs. We have, however, seen this lesion bounded five times to the left lung, and twice only to the right. Can we, from this fact, consider the right lung as less predisposed to the development of tubercles than the left?

16. We have remarked that tubercles evinced a kind of preference for the summit of the lungs; that here they were larger, more advanced, and comparatively more numerous. This observation is still more applicable to the upper lobe, contrasted with the lower, than to the lungs in general. For, besides the large excavations which are almost exclusively found in the top of the upper lobe, grey granulations, tubercles, small cavities, &c. are still more numerous and approximated in this

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* "*Infiltration Tuberculeuse Gelatiniforme*" of Laennec. Vide *Forbes' Transl.* p. 277. M. Louis' observations are not confirmative of Laennec's, who says, he has *frequently* seen small yellow tuberculous points in this substance, which he regards as a mere variety of tuberculous matter. (Translator.)

point than either in the rest of its extent, or in the corresponding portion of the inferior lobe. We have also frequently found the whole of the upper lobe degenerated into cavities, and into the grey or tuberculous matter, completely hepatized, whilst at the same level in the inferior lobe we always met with a portion, at least, of the pulmonary parenchyma, capable of continuing respiration; and very rarely with tuberculous excavations.

One of our observations of acute phthisis is an example of the morbid disposition we are now describing.—(*Obs.* 36.) In thirty-eight cases, (about one-third of the whole) where we have encountered it in nearly a similar state, it existed twenty-eight times in the left side, and only ten times in the right. An additional fact, seeming to point out that the left lung is more favourable than the right for the development of tubercles, agreeing with what we have mentioned in the preceding paragraph. The history of the perforation of the substance of the lung is no less in consonance with this conclusion, for out of eight cases (the only ones we have collected) seven have been observed as belonging to the left side.*

However, there are some cases (and we are indebted for the remark to M. Chomel) where the grey matter of the upper lobe appears to have been the product of chronic inflammation. It had not, it is true, that granulated aspect, which, according to Laennec, forms the anatomical character of the second or third degree of pneumonia; but it presented a general milky semi-opaque appearance, not resulting from miliary granulations, for they were absent; it is traversed by white dense cellular intersections, equally distinct with those in pneumonia; it is more compact than the common grey matter; and these peculiarities, when well marked, appear sufficient to distinguish these two alterations from each other. And, with respect to the granulated appearance of which we have spoken, there is nothing absurd in the idea that it may be the effect of time, which so powerfully modifies and changes the characters of all pathological alterations.

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* This opinion is contrary to that of Laennec, but in unison with that of Dr. Stark (Vide *Medical Communications*, p. 35), and also of Dr. Carmichael Smith, who deduces his opinion from a comparison of the cases in the works of Bonetus, Morgagni, and others. (Vide *Forbes' Transl.* p. 282, note by Dr. F.) The fact is not without interest, since it forms a strong argument against the inflammatory origin of tubercles, as the reader will see, in the section "On the Influence of Pneumonia on Phthisis." (Translator.)

17. We have only once met with *encysted* tubercles.* They were situated at the summit of the lungs, and easily separable from the surrounding tissues.—(*Obs.* 31.)

18. The softening of tubercles took place at very different periods: in some cases from the twentieth to the fortieth day, counting from the commencement of the disease—(*Obs.* 33); in general, at a much later period. It presented the same features as the transformation of the grey into the tuberculous matter, beginning in the centre of the tumour, and proceeding from the summit to the base of the lungs; and by examining them in this direction, we successively found, at various heights, excavations, softened tubercles, crude tubercles, and the grey semi-transparent granulations.

Instead of taking place in a gradual manner, the softening sometimes occurred simultaneously over a considerable extent of surface, and the whole of one lobe degenerated into tuberculous matter, was nearly equally soft, and easily broken down throughout the whole of its extent. These were rare cases, and confined exclusively to acute phthisis.—(*Obs.* 36.) There was even here an incomplete cavity at the top of the upper lobe, of which the remainder was tuberculous and almost equally softened.

19. We have not found tuberculous excavations entirely empty before the end of the third, or the commencement of the

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* Laennec considers them very rare; Bayle has described them, p. 21. The remark is, however, principally interesting as an argument for the *organization* of tubercles. All secretions not organizable must be expelled or *encysted;* therefore, every secretion which does not tend to *encyst itself,* and which can exist a long time without producing irritation, shares in the common life. Is not this very often the case with tubercles? When tuberculous matter is *rapidly deposited,* it then acts as a foreign body, and the accession of general symptoms immediately follows, as we see in acute phthisis. *Organized* morbid productions, after a time, secrete *non assimilable* products, which become the cause of their destruction. The *softening of cancer* is nothing more than this; that of tubercles is *sometimes* analogous. We refer our readers to an ingenious paper on this subject by Trousseau and Leblanc.—*Archives Générales de Médecine,* 1828. (Translator.)

fourth month, counting from the invasion of the disease. At this period, the parietes of the cavities were generally soft, and lined by a false membrane of little consistence, and easily separated. The pulmonary tissue itself was very rarely exposed. When the disease had a more distant origin, and the cavities were more ancient, (which could be substantiated by the exact history of the symptoms, and the comparative results of auscultation), their sides were almost constantly more or less resisting, formed of tuberculous matter, of the grey substance, and sometimes of melanosis. These different alterations, either separated by a small quantity of healthy pulmonary tissue, or continuous with each other, were variously combined. The membrane which lined the excavation was dense, greyish, almost semi-transparent, semi-cartilaginous, from one-third to one-fourth of a line in thickness, sometimes less, and generally covered by another membrane of very slight consistence, of a yellowish or whitish colour, and usually distributed in patches. In one-fourth part of the cases, we have found no membrane at all, and when this was the fact, the pulmonary tissue, more or less considerably modified, was uncovered.

20. Large or small, old or recent, the excavations communicated with the bronchi by a greater or less number of openings. The mucous membrane of the latter, and the false membrane of the former, were closely connected at the entrance of the excavation; and when the parietes of the bronchi were red, their limits could only be determined by means of dissection.

21. Old excavations still further differed from those which were recent, in their being uneven, rugged, and generally communicating with smaller cavities. They were frequently crossed in different directions by cord-like intersections. These were variable in length, uneven, narrow, from one to two lines in thickness, formed by the grey semi-transparent matter interspersed with tubercles, and thinner in their middle portion than at their extremities: it was very rarely that vascular ramifications could be detected. We have, however, seen them in five cases, either with or without the aid of injection.—(*Obs.* 31.)

22. The presence of vascular ramifications in the centre of these cord-like prolongations, proves the destruction of a certain portion of surrounding tissue; and this fact is sufficient to point out, that in all cases of large excavations, some destruction

of the pulmonary parenchyma must previously take place. The rupture of bronchial vessels in the neighbourhood of these excavations, their obliteration in the parietes, their direction, which often indicated their passage across the space they occupied, may be mentioned as additional proofs.

It may happen, also, as Laennec has said, that granulations are developed in the interstices of the pulmonary parenchyma; but when they are sufficiently contiguous to excite around them the development of the grey semi-transparent matter which unites them, destruction of the parenchyma is here equally a necessary consequence. The tissues comprised between the granulations have disappeared; so that excavations of very moderate dimensions, suppose as in the case of the larger, the destruction of some portion of the substance of the lungs.

23. The great tuberculous excavations of the upper lobe were nearer the *posterior* than the anterior edge of the lung,* and in many instances we have found their sides in the former direction, almost wholly formed by a false semi-cartilaginous membrane, from a line to a line and a half in thickness, enveloping the summit of the organ. Inferiorly, they were sometimes only separated from the pleura which covers the intelobular fissure, by a thin layer of pulmonary tissue, more or less modified—(*Obs.* 28),—or there was perforation of their parietes in this point, and communication established between another excavation, situated in the inferior lobe and posteriorly; for it is worthy of remark, that in no one instance have we met extensive excavations in the centre of the lower lobe. The following observation is a very remarkable example, both of the facts we have last described, and an illustration of the great size tuberculous excavations may attain.

OBSERVATION I.

A girl, aged 20, of rather delicate constitution, but generally free from sickness, was admitted into the hospital of La Charité, the 24th August, 1824. She had not ceased growing, and had been confined, without accident, eight months previously. With the exception of some pains in the epigastric region, which were complained of during her pregnancy, she enjoyed good health during the two first months following her confinement, after which period she experienced all the symptoms of phthisis. The cough and expectoration had commenced together, and had been more urgent the last two months. To this increase of the two principal symptoms were added considerable oppression, with pains between the shoulders and the middle of the sternum. There had been only very slight hæmoptysis. The voice had been weak the last fifteen days, and had finally become extinct; appetite variable from the commencement; frequent nausea, and a more or less painful state of abdomen; for the last twenty-four hours the patient had vomited without apparent cause. The diarrhœa had been constant for the last four months; heat much augmented; copious sweats during the night, and gradual loss of flesh. Rigors had been present from the first, and had continued every day since. On the 25th of April the face was pale, and with expression of fatigue; slight head-ache; sleep continues interrupted, as during the last three months; intelligence unaffected. Cough moderately frequent; sputa of a greenish colour, imperfectly *nummulated;* in small quantity, and of a sickly odour, as had also the patient's breath; voice feeble, and slightly changed in character; percussion clear under both clavicles; sense of heat; pectoriloquy and metallic tinkling during the cough; the inspiration and expiration heard in lower part of right side. Tongue natural; incomplete anorexia, with sense of weight in epigastric region after ingestion of food; habitual pain in the same region; hypogastrium sensible to pressure; the previous evening, three stools with colic pains. Pulse small and weak, extremely rapid; heat slightly elevated; night perspirations. Great weakness, and extreme marasmus. The patient had come to the hospital under a feeling of despair, and expressed much anxiety to be cured. Decubitus on the left side.

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* This opinion coincides with Dr. Stark, (*Medical Communications*, p. 369), and with Dr. Young, p. 32. (Translator.)

On the 17th complained of rather an acute pain in right side of chest, and on the 18th, at 3 p. m., she expired, almost without a struggle, retaining her consciousness to the last.

Sectio Forty Eight Hours after Death.

Exterior.—Extreme emaciation.

Head.—Two small spoonsful of serosity in upper portion of arachnoid;—pia mater slightly red coloured; brain healthy:—half a spoonful of clear fluid in each lateral ventricle.

Neck.—Epiglottis, larynx, and trachea, natural.

Thorax.—The right lung adhered, pretty strongly by its summit and posteriorly, in the greater part of its extent, to the pleura costalis, by means of a strong and moderately thick false membrane. Its external surface instead of being convex, as in the natural state, presented a large and deep hollow formed by an excavation, which we judged to occupy three-fourths or four-fifths of the total volume of the lungs. It reached from the summit to within three quarters of an inch of the base of the organ, and from the posterior part to within half an inch, or nearly so, of the anterior. It contained a moderately thick turbid substance, of greyish and brownish colour, with an odour analogous to that of animal matter some time in maceration. Its parietes were extremely uneven; presenting in many places fragments of pulmonary tissue, greatly changed, and on the point of being detached; no false membranes were observed; the external boundary was from one to three lines in thickness and sometimes much less. At the part corresponding to the interlobular fissure, the cavity was divided unequally by means of a septum, pierced with numerous large openings, and formed, as the rest of the circumference, by a grey and sometimes bluish and semi-transparent matter interspersed with tubercles. The right bronchus opened into this enormous cavity about half an inch after its entrance into the lung, and was much more dilated than that of the opposite side. The remainder of the lung contained numerous grey and tuberculous granulations, leaving scarcely a tenth of its volume capable of respiration. The upper part of left lung adhered slightly to costal pleura, and presented a small cavity capable of containing a walnut, surrounded with the grey semi-transparent matter, but with a still larger proportion of tuberculous. A great number of grey semi-transparent granulations existed in the lower part of this lobe, congregated in small masses, many being very superficial and giving a nodulated appearance to the lung externally. Very few were found in the lower lobe. Heart sound; aorta red in the whole of its course; the redness extending, while diminishing in intensity, into the carotid and femoral arteries. No sensible alteration in the thickness and consistence of arterial coats.

Abdomen.—Liver voluminous, of a dull yellow colour, overlapping part of the stomach; moderately firm, and slightly greasing the scalpel. The bile was thick and tenacious. The stomach presented a bluish tint externally in the part corresponding to the great curvature. Volume natural. Although detached with the greatest possible care from the spleen and adjacent organs, there was a perforation of nearly an inch in diameter, to the left and posteriorly to the cardiac orifice, with extremely thin and discoloured edges, formed of peritonæum and a very thin layer of submucous tissue. Internally the principal part of the great cul de sac and the anterior parietes were of a pale bluish colour, with the veins strongly defined. The mucous membrane of the same portions was reduced to the consistence of mucus, and not thicker than common blotting paper. It was similarly affected, in bands of from three to four lines wide, throughout the remainder of its extent; and in the intermediate spaces was of a tolerably bright red colour and moderate consistence. Mucous membrane of small intestines perfectly sound with the exception of ten very small ulcerations in the neighbourhood of cœcum. In the same point and in the submucous tissue, were some small whitish indurations, rather larger than millet-seed, but not of decidedly tuberculous character. In the large intestine the mucous membrane was pale, free from ulceration; slightly thickened and soft as mucus. Mesenteric glands were sound; spleen rather softer than natural; uterus extremely small, not more than fifteen lines in its transverse diameter. No other appreciable alteration.

24. The clearness of percussion below the right clavicle, combined with the pectoriloquy and the metallic tinkling in the same region, proved to demonstration the existence of a vast excavation partly filled with air and liquid. (285.) We were, however, far from thinking it so considerable. No doubt, if the weakness of the patient had not prevented the examination

of the respiratory phenomena posteriorly, we should have acquired new data for the more exact appreciation of the size of the excavation; but even then it is more than probable that we should not have entirely avoided error, and that we should have ascribed, to a large number of cavities communicating with each other, the effects which here depended on one alone. The imperfect septum existing in the upper part of the excavation, was formed by the adhesion of the corresponding portion of the upper, middle, and lower lobes, reduced at this point to a very inconsiderable thickness. The odour of the contained fluid, identical with that of the expectoration, and the half putrefied portions of lung still attached to the sides of the cavity, are less remarkable than its unusual dimensions. This may also be said of the dilated and short bronchus which opened into it; and we can easily conceive, how, in similar circumstances, portions of the lung itself may be expectorated. In fact, from some particulars mentioned by the patient's mother, it would appear that some fragments of the pulmonary tissue had been noticed in the expectoration a few days previous to her admission into the hospital. But patients and their attendants, observe with too much prejudice, to allow their simple testimony to have much weight in the determination of a fact of this description.

Let us also remark, that notwithstanding the great extent of the disorder, there had only been very slight hæmoptysis; that the progress of the affection was rapid; and finally, that this observation is an instance of the disproportion, so frequently existing in phthisical patients, in the relative state of the two lungs.

25. Although in the great majority of cases tuberculous excavations are found in both lungs, the fact is not constant. In the sixth part of our observations, they only existed in one side or the other, and when found in both, there was generally some difference in their extent. In rather less than one tenth they were equally large on both sides, and in another tenth, their dimensions, whether moderate or small, were equally distributed.

26. By the term "*vast excavations*," we understand those whose capacity equals the volume of a goose's egg, a man's closed

hand, or even still larger. They existed, either in the right or left lung, in the proportion of about one half of the cases, and were equally frequent on either side. The excavations of "*moderate size*," may be represented by a middle sized apple, or rather smaller; the "*small ones*," by a hazel nut; both nearly equally distributed through the remainder of the cases.

27. The contents of the excavations were subject to variation from many causes; among the principal we may mention their chronicity,—the structure of the cavities, and perhaps the state of the circulation shortly preceding death. If they were of recent origin, their contents were thick, yellowish, similar to common pus. If of longer duration and their parietes broken up and deprived of false membrane, the fluid was of a greyish greenish tint, having a dirty and disagreeable appearance, thin, of moderate consistence, and sometimes tinged with blood, or even of a deep red colour. This last coloration certainly took place but a few hours before death, for we frequently found it at the post mortem examination, while it was extremely rare to see similar coloured expectoration either during the last or two last days of the patient's life.

Though in general the contents of the excavations were without any particular smell, they sometimes closely resembled that of animal substances after being some time macerated. This could not depend on the extent of the cavities, for the odour was sometimes absent in those which occupied a fourth or fifth part of the volume of one of the lungs. Neither was it owing to contact with the air, or at least this was not the only cause, for though the excavations were constantly partially filled, the odour was only observed in three cases. In one, the preceding, it seemed to result from the gangrene of some fragments of grey matter incompletely separated from the sides of the cavity. In two others, this particular disposition did not exist, the excavations were more or less rugged in their structure, without any other peculiarity.

28. Instead of air or pus, in one instance we found an organized fibrous body, filling a moderately sized tuberculous excavation. This fact appears to us of sufficient interest to merit notice at the present moment.

OBSERVATION II.

A strolling organ player, aged 29, of moderately strong constitution, middle stature, and impetuous disposition, was admitted into the hospital of La Charité, the 24th April, 1824. Had been ill a year and eight months; had ceased his usual occupation for twelve months, keeping his bed occasionally during the last three weeks. He attributed his complaint to having taken a glass of cold water when over-heated. It had commenced by a dry cough, and dyspnœa; no expectoration before the second month of its duration, and until the last eight days he had never had hæmoptysis. At this period he was suddenly attacked, without any apparent cause, and when he was walking quietly, with so copious a discharge of blood, that he is confident he vomited twenty-four ounces in less than twenty minutes; since when the sputa had only presented a variably intense red colour.

Rigors, increased heat, and perspirations, the last nine months. Very slight diminution of appetite, though vomiting produced by cough was frequent. Diarrhœa at long intervals, lasting a few days each time. Loss of flesh from the commencement.

On the 25th August—marked emaciation; skin of a light yellow colour, especially that of face; some oppression; cough very frequent; expectoration opaque, tinged with blood. The patient thinks he can feel the sputa detach themselves from the left side of chest, and at every shock caused by cough, he experiences a slight pain at the lower part of same side; he has complained of this from the commencement. Percussion dull, for about two inches under right clavicle; equally so on the left side, over the whole of corresponding part of upper lobe. In the same regions, well marked pectoriloquy; tracheal respiration, and on the left side considerable gurgling rouchus. Auscultation between the shoulders gave the same result. Pulse rather quick, small and weak; temperature rather higher than natural; some appetite; thirst not increased; digestion easy; abdomen yielding and indolent; one stool daily, and of good consistence.

℞. Pectoral infusion. Gum potion. Quarter of house allowance—no wine.

1st Sept.—Appetite increased; pains in left side more severe and constant than usual. In the evening they had diminished in intensity; but he was attacked with rather acute pains in hypogastrium and throat; oppression as before; no sensible change in expectoration. The patient attributed all his sufferings to the left side of chest. No alteration of voice—and no painful sensation felt in trachea.

On the 11th, the respiration became more embarrassed, and during the night he was obliged to retain the sitting posture, and afterwards to leave his bed for the purpose of relieving the dyspnœa. On the morning of the 12th he experienced behind the left clavicle, a very extraordinary sensation which he compared to that of a hole (un trou). The dyspnœa was extreme, very little appetite, stools regular and of good consistence. He complained of acute pains in the abdomen, remained seated on a chair, the body inclined forwards and suffering great anxiety.

These symptoms continued; the breathing became very hurried; appearance of sputa unaltered; occasional variation in intensity of abdominal pains; and he expired in the night of the 16th, without having manifested any delirium. He got up unassisted on the morning of the 16th to relieve the dyspnœa. During the day and the previous evening, we could not detect pectoriloquy under the left clavicle; the patient said that he had heard a frightful ronchus in the same point twenty-four hours earlier.

Sectio Thirty-two Hours after Death.

Exterior.—Extreme emaciation.

Head.—A thin layer of infiltration beneath the upper portion of the arachnoid; a spoonful of clear serous fluid in each lateral ventricle; a similar quantity in the base of the skull. The septum lucidum was softened at its inferior part: the remainder of cerebral mass healthy.

Neck.—No alteration of epiglottis or larynx. Mucous membrane of trachea of a pale delicate red, interspersed inferiorly with pretty numerous ulcerations, the larger of which were situated on its fleshy portion.

Thorax.—The left lung was intimately adherent to the costal pleura at its apex, and in the rest of its extent, by means of cellular filaments, in the intervals of which there was slight serous infiltration. The upper lobe was indurated, converted into a grey semi-transparent matter, in the centre of which existed another substance of perfectly uniform structure,—of yellowish colour,—and similar at first sight to jelly, but much firmer and not easily yielding to pressure. Here and there were seen some softened tubercles, more or less excavated, and in the upper part of the same lobe, there was a middle-sized excavation filled by a mass of fibrine which was red, firm, enveloped in a white, easily torn, false membrane, slightly adhering to the one lining the cavity, and giving off numerous septa reuniting in a central point. Round the excavation, and in the middle of the grey substance were vessels of about half a line (un millimètre)* or rather less in diameter. We traced them very easily by means of a fine wire, but without detecting any communication with the excavation just described. A tolerably large cord-like prolongation, placed between this cavity and a smaller one situated posteriorly to it, contained a diminutive vascular ramification, which also did not seem to communicate. A large quantity of grey matter, tubercles, and granulations, existed in the lower lobe, half of which was still penetrable by air. Cellular adhesions over the whole surface of the right lung: at its summit there were numerous grey granulations, and a moderately sized excavation, at the base of which were some isolated portions of hepatized tissue. Heart and aorta sound.

Abdomen.—Liver of a dull red colour, more strongly marked than natural, of usual dimensions. Mucous membrane of stomach covered with a viscid mucus, and of rather a bright red colour throughout its whole extent; of natural thickness and consistence; its villous appearance distinct. Duodenum natural. Mucous membrane of small intestine, as if sprinkled with minute particles of fat, in other respects healthy. That of large intestine was a little softened and somewhat injected throughout.

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* The unity of French measures is the metre = 39·37079 English inches; the millimètre is = 0·039 inches. The French inch is divided into 12 lines, and there are 443½ lines in the metre: so that a millimètre may be regarded as about the 1-26th of an inch. (Translator.)

Four small ulcerations in cœcum and ascending colon, of a greyish colour, caused by the slightly thickened cellular tissue which formed their bottom. Fæces presented a dull dirty yellow appearance in the cœcum, but were elsewhere of a clear yellow colour, and good consistence. The other viscera of abdomen healthy.

29. Were we merely to fix our attention upon the apparent organization of the fibrous clot occupying the large excavation of the left lung, we ought perhaps to date its origin from the period in which the patient experienced a copious hæmoptysis. But if we recollect the signs furnished by percussion, and the symptoms observed near the termination of the affection, this will appear very doubtful. For, the first time that we saw the patient, eight days after the occurrence of the hæmoptysis, pectoriloquy could be distinctly heard under the left clavicle, that is, immediately in the point corresponding to the cavity, filled by the fibrous coagulum. We attempted in vain to discover it twenty-four to forty-eight hours previous to death. By the supposition that the fibrous clot was formed during the last days of existence, all would be easily explained. In this case, the pectoriloquy ought to have existed at the time of admission, and ought to have ceased at a much later period. But the contrary idea leaves every thing unexplained, and forces the admission that pectoriloquy may or may not be present in a completely filled excavation. If we join to these considerations the sudden appearance of other local symptoms, the dyspnœa, the extraordinary sensation complained of behind the clavicle four days before death, we must admit, notwithstanding the difficulty of giving any explanation of these subsequent accidents, that it is infinitely probable that the formations of the fibrous coagulum took place during the last period of the patient's life. With regard to the dispnœa, it may be remarked that the state of the mucous membrane of stomach and colon, which we may consider as produced by acute inflammation, had no doubt a greater or less influence.—(98, 341.)

30. We have recently met with a fact of another description, and much more remarkable. It is connected with the particular subject at present before us, and we shall now relate it.

Observation III.

A sempstress, aged 27, of rather delicate constitution, was confined without accident, and at the natural period, eighteen days before entering the hospital of La Charité, on the 8th of March, 1825. She had coughed and expectorated the last seven months and a half, without any apparent cause; was subject occasionally to pains in the side. Rigors, followed by heat and sweatings, had been complained of during the last weeks of pregnancy, but had ceased after parturition. Complete anorexia; thirst rather urgent the last month; and for the last three months there had been almost constant diarrhœa. Had not had hæmoptysis, and could not recollect when she first began to lose her flesh.

On the 9th of March we observed,—loss of colour over the whole body, extending to lips; considerable feeling of lassitude; movements painful; lies with head raised; considerable oppression; cough not frequent; expectoration mucous and semi-opaque. Percussion of chest clear every where; a bubbling sound heard under right axilla and posteriorly between the shoulder and vertebral column of the same side. Inferiorly and to the left in the corresponding part, was a slight crepitation. In other parts respiratory murmur natural. Pulse small, weak, accelerated (110 in the minute); heat of surface moderate; tongue pale and clean; mouth clammy, no appetite or nausea. Epigastrium and especially hypogastrium painful; pain increased by pressure. The patient had lost very little blood after her accouchment. On the fourth day the discharge had become whitish, and had continued so since; it was not abundant.

℞ Infus. viol.; mucilaginous mixture; emollient injection; fomentation to the hypogastrium; a julep, and chicken broth.

Until the 5th of April, the day of her death, the thirst was moderate,—more complained of at night than during the day; expectoration scanty, and only opaque and nummulated in the last twenty-four hours. In the night of the 25th of March, an acute pain was felt in the left side of chest, readily yielding to the application of a few leeches. From that moment there was considerable cough and dyspnœa. Up to this period percussion and auscultation, though frequently repeated, merely confirmed the results of the first examination. The pulse was constantly small and weak, varying from 108 to 115. The patient was attacked with violent rigors in the night of the 25th March; and from this time a sensible increase of general temperature took place. We never remarked any perspirations.

The thirst was not urgent; appetite quite gone. After the 15th of March there was nausea and vomiting of green bitter substances, or almost tasteless and colourless, either during the cough or in its intervals. It occasionally ceased for a day or two, and was sometimes repeated several times in the twenty-four hours. The pains felt in abdomen diminished in intensity. No diarrhœa until the last week; it was then copious, but unaccompanied with colic. The urine became more or less burning, and from the 28th March to the 2d of April, complete retention took place, requiring the frequent introduction of the catheter. The discharge from vagina became red for a short time at two different periods.

The prostration diminished, four days after the entrance of patient into the hospital, and the countenance became more animated.

On the 12th March we observed slight œdema of lower extremities, which rapidly increased.

On the 25th she complained of pains in the thighs, which were very acute in the inner and upper part of left leg, four days before death, and the skin presented a slight red tinge. Constant delirium and general agitation during the last night. Death took place at 4 a. m.

In addition to first prescription, an infusion of the triticum repens, and aromatic fumigations under the bed clothes with the sabine berries, were had recourse to. For the diarrhœa, the white decoction with quince syrup, some diascordium and a grain of opium, with afterwards a narcotic enema, were prescribed. The only nourishment taken was chicken broth.

Sectio Twenty-eight Hours after Death.

Exterior.—Inferior extremities much infiltrated; some bullæ at the inner and upper part of thighs, where the skin was of rather a bright red colour. The crural veins, and especially those of the left side, were distended with firm, fibrous coagula of variably intense red colour, and adhering firmly to the lining membrane, which was of a delicate rose colour and rather thicker than that of another individual of the same age, with which we compared it. The coagula extended into the collateral and iliac veins as far as the vena cava inferior.

Head.—Tolerably abundant infiltration beneath the arachnoid, covering the convexity of the hemispheres. Not quite a spoonful of clear serous fluid in each lateral ventricle; a spoonful and a half of the same fluid in the inferior occipital fossæ. The whole of the encephalic mass rather soft.

Neck.—One of the lymphatic glands on the left side had acquired the size of an almond in its husk, was firm in texture, of reddish colour, and spotted with numerous small yellow opaque bodies, evidently tuberculous. No change was observed in the epiglottis, larynx, or trachea.

Chest.—About two pints of clear serous and slightly red fluid were found in the cavity of left pleura. The corresponding lung was much diminished in volume, and invested, as was the costal pleura, by a red false membrane, moderately consistent and rather less than half a line in thickness. The structure of lung was greyish, but healthy and free from air; bronchi of a bright red colour, without sensible thickening. The right lung presented some thinly scattered cellular adhesions, and in its summit, an excavation of middle dimensions, partly filled by a muddy and greenish fluid, which surrounded a slightly greyish coloured mass, streaked with black lines, similar to those we observe in the pulmonary tissue; its form was oblong, a little flattened, sixteen lines long and ten wide; it weighed very little, was soft and rather elastic and of a pale rose colour internally: it was in fact exactly similar to a fragment of the lung itself which had been immersed some time in water. There was no bad odour, or any pedunculated prolongation at its surface. The excavation was lined by a false membrane of moderate consistence, a quarter of a line in thickness, and lying upon healthy pulmonary tissue. It presented in opposite points two projections, of about a line in height, formed by the extremities of two bronchial ramifications. The remainder of the lung was slightly engorged, free from tubercles or grey granulations, or any other trace of organic disease. The bronchi were pale and thin.

The heart was scarcely two-thirds of its usual size; aorta healthy.

Abdomen.—About sixteen ounces of clear lemon coloured fluid in the peritonæal cavity. The stomach, of nearly twice its ordinary volume, partly filled the left hypochondrium, reaching to the umbilicus. Its mucous membrane was of a yellowish brown colour in the whole of its extent, with the exception of a zone in the vicinity of the pylorus, of about an inch in width; its consistence was moderate, and it was about half its usual thickness. It was still thinner in the points corresponding to numerous whitish rounded spots, from one to two lines wide, uniformly distributed over its whole surface. Mucous membrane of small intestine healthy; that of cœcum and colon a little softened. In the remaining portions of large intestine it was as soft as mucus, but only injected in the rectum. No ulcerations or other alterations of the intestines or mesocolic glands.

The uterus was twice as large as usual; its cavity much increased, of blackish colour, as if spongy to the touch, and easily broken down; its parietes were not sensibly thickened, except anteriorly, where they projected about a line on the inner surface.

The ovaries were rather softer and larger than natural. The remainder of abdominal viscera sound.

31. The presence of a fragment of pulmonary tissue, in the midst of an excavation, is certainly a very extraordinary fact, and which, perhaps up to the present moment, has not been observed.* There could be no doubt as to the real nature of what we have just described; for the colour, the consistence, the structure, the mode of tearing—in short, every thing corresponded with what characterizes the tissue of the lung itself. The absence of gangrenous odour proved that its isolation was rather recent, and we may very well suppose that it adhered for some time to the remainder of the organ by the two bronchial projections already described. Indeed, these two points were the only ones where no false membrane existed, while

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* If we may trust the descriptions of Tulpius in his *Observationes Medicæ*, 1641; of Aretæus, in his chapter "On Abscesses of the Lungs;" of Galen, and of Bontius in his *Medicina Indorum*, 1631, the expectoration of portions of the lung and bronchi is not very uncommon. Vide *Young on Consumption*, pp. 124, 139, 167. (Translator.)

every where else the latter was continuous with itself; indicating, no doubt, that the separation of the fragment had been effected some time, with the exception of the two projecting bronchi.

This excavation was remarkable also, on account of the false membrane which lined it being every where in contact with healthy or only slightly engorged pulmonary tissue, which is very rarely the case.

32. But may it not be asked, with some apparent probability, whether this excavation really was the effect of tubercles, and if the patient had *phthisis;* for no tubercles or grey granulations existed in the lungs; there were no ulcerations in the larynx, trachea, or intestines,—alterations so frequently occurring in this affection? To this we would reply, that the purulent matter of the excavation was exactly similar to what we usually find in tuberculous cases; that the false membrane had equally analogous properties; lastly, and the fact is a powerful one, a cervical gland was evidently tuberculous, and in the course of these researches we shall find that we have never observed the tuberculisation of lymphatic glands, except in phthisical patients.*

Among the facts of this observation, over which we shall merely glance, we would recall the pleurisy of the left side, the invasion of which was marked by pretty acute pains;—the partial and general diminution in thickness of the mucous membrane of the stomach, with but slightly marked softening;—the want of consistence, and the change of colour of the uterus, produced by inflammation;—finally, the œdema of the lower extremities, which must be attributed to the obliteration of the crural veins.

33. For the purpose of terminating all we intend to remark on the subject of tuberculous excavations, it may be added, that in no one instance have we met, surrounded by *healthy* pul-

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* This mode of reasoning being probably rather new to the reader, we refer him to section 158 for its solution. If observation has demonstrated (and we believe it has), that after the age of fifteen tubercles in *any* organ of the body involve their presence in the lungs, the conclusions of the author are both legitimate and necessary, though without this previous rigorous observation, they would have been impossible. (Translator.)

monary parenchyma, with cavities communicating with the bronchi, and lined, as *are* tuberculous excavations of long standing, with a false membrane of a light grey colour, semi-cartilaginous and semi-opaque. Such, however, have been observed by M. Laennec, in the examination of persons who had presented the symptoms of phthisis during a space of time more or less considerable; and judging from their structure, it would be difficult not to believe that tuberculous softening preceded their formation. The previous observation is indeed well adapted for the confirmation of this fact. For here, as in the other cases we are referring to, there was but a single excavation; the pulmonary tissue was healthy; and we may conclude, that if the life of the individual had been prolonged for some weeks or months, the false membrane lining the cavity would have presented the characters we have last mentioned.

We have also failed to meet with those masses of condensed cellular tissue, in which the bronchial ramifications, more or less dilated, terminate, and which are considered by Laennec as the cicatrices of tuberculous cavities. *

34. The depressions observed in the upper part of the lungs, around which their tissue is, as it were, puckered, do not appear to depend upon any determinate lesion. We have frequently seen them when the pulmonary parenchyma was healthy, or only slightly indurated to a small depth, immediately beneath the pleura. They were present also sometimes when either

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* These results are singularly negative, when compared with those of M. Laennec, Andral, and others, who bring forward *copious* and *undeniable* evidence of cicatrisation of tuberculous excavations, and the formation of a fibro-cartilaginous membrane, when the cavity is not obliterated. It must be recollected that M. Louis never forces his conclusions beyond the number of facts he is analysing, and it is remarkable that not one of these have presented an example of cicatrisation; this inclines us to suppose that the presence of a cicatrice has often been hastily admitted; a supposition confirmed by the succeeding observations of our author. That a tuberculous excavation is *ever* capable of cure is an important fact, and highly calculated to encourage us in the research of means calculated to arrest this hitherto most destructive affection. Vide Andral, *Clin. Med.* vol. iii p. 382; Laennec, pp. 299, 323—and notes by Dr. Forbes. Cottereau, in his *Essay on Chlorine Inhalation*, adduces also some incontestable facts. (Translator.)

crude tubercles, small excavations, or osseous concretions existed in the summit of the lungs.

35. We have never found *bronchial ramifications* in the interior of tuberculous cavities, or in the masses of the grey semi-transparent matter, so that the first effect of the development of this substance appears to be, as M. Laennec has remarked, the destruction of the bronchi. It might be thought that this destruction arises from the transformation of the air-tubes into the grey or tubercular matter; but this supposition appears to us very doubtful, from the fact, that we have never seen this transformation, either in the excavations or the tubercular masses, or even in any other part of the lungs, though the bronchi presented various alterations. It is then highly probable that this destruction takes place by absorption.

36. The bronchial mucous membrane sometimes retained, in the neighbourhood of tuberculous cavities, its natural paleness. In general it was of a bright red colour, and this seemed to be caused by the continual passage of the purulent secretion of the excavations through the bronchi; for it was not present, or very rarely so, near the masses of grey or tuberculous matter, not yet in suppuration; it was less frequent in the bronchi communicating with recent than old excavations, and when existing throughout the lung, it was not more marked around the latter than elsewhere.*

37. When reddened, the bronchial mucous membrane was sometimes a little thickened, and occasionally the seat of small ulcerations. But much more frequently there was dilatation of the air-tubes, and hypertrophy of all their tunics. This hypertrophy was especially marked in the *upper part of lungs*, when the bronchi were often three or four times thicker than natural; and it is easy to conceive that such various changes would tend to augment the severity of the principal affection.†

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* Numerous facts are scattered through the volume, tending strongly to corroborate the statement that the redness of the mucous membrane of the air-tubes, and its ulceration, are often depending on the contact of the contents of the tuberculous excavations. The fact has not before been demonstrated, and is important in the question of the dependence of tubercles on bronchitis. (Translator.)

† The frequency of dilated bronchi in the *upper lobes* is rather in opposition with what we know of the progress of simple bronchitis from below upwards: it might naturally be expected to prevail where bronchitis is

38. *Inflammation of the pulmonary parenchyma* was not rare. We have observed it at the second stage, in a very variable extent in eighteen subjects, or in a little less than one-sixth part of our cases. The pulmonary tissue was red, indurated and granulated—in a word, hepatized; and, almost constantly, the hepatization existed in the *lower lobe.* In nine subjects it occupied a considerable space, from the half to three-fourths of one of the lungs. In the others it was much more limited, and represented the appearance of small masses, more or less disseminated. The excavations were very considerable in four of the first-mentioned class. In the others, there were either merely semi-transparent or tuberculous granulations, partially excavated. The characters of the alteration indicated a recent disease; and the history of the symptoms proved, as we shall see farther on, that it had only preceded death a few days.

39. We have found a state of simple engorgement, or the first degree of pneumonia, in twenty-three subjects, and usually not extensive. In four cases only, it occupied the greater part of one, or even of both lungs, which were still crepitating, giving vent on incision to a large quantity of red frothy fluid; the consistence of the engorged part was diminished, and it was easily torn.

In one of the cases, where a considerable portion of the lung was thus affected, we observed, forty-eight hours before death, pain and a fine crepitation in the affected side. These symptoms confirm the inflammatory nature of the affection, and indicate here, as in the preceding cases, that it had commenced but a few days before death.

40. The development of this complication at a period so shortly before death, is not peculiar to phthisical cases. We have remarked it at the termination of other chronic diseases, and in nearly equal proportion. In 112 cases, where death took place during the last stage of these affections, in twelve we found a portion of one and sometimes of both lungs, red, granulated, and hepatized. A state of congestion was noticed in ten other instances; and, as we have shown in the case of phthisis, the history of the symptoms proved the inflammation

most frequent, viz. in the lower lobes. Does the physical condition of the upper portion of the lung exert any influence on this morbid peculiarity? (Translator.)

to have preceded death only a few days. It results from this comparison of cases, that tubercles and tubercular excavations are nearly without influence over the development of pneumonia in the last stage of phthisis.*

ARTICLE II.—*Of the Pleuræ.*

41. Nothing was so frequent as the adhesion of the lungs to the pleuræ; for in a 112 cases, there only existed *one* in which the two lungs were free in the whole of their extent. We have only found the right lung completely without adhesions, eight times; the left only seven, and in these cases there were either no tuberculous excavations, or only those of very limited dimensions.

In twenty-five other cases, the adhesions were cellular, easily ruptured, confined to a small space, and seldom present on both sides. In seven out of this number, there was no excavation in the lung corresponding to the adhesions; in ten others the adhesions were very insignificant, and in the remaining eight cases they were of moderate or considerable extent.

Among the other individuals, they were universal, or nearly so; formed either by variably dense cellular tissue, or a false membrane; in both which cases large cavities almost constantly existed.

Thus, there was evidently some relation between the extent of organic alteration and the pleural adhesions; if the latter were absent, there were neither large or middle-sized excavations, and in general, none whatever. Were they weak and limited in extent, the cavities were generally very small, and sometimes altogether wanting.

Lastly, where the adhesions were dense, extensively distributed or even universal, they *always* indicated excavations in the lungs, and in the great majority of cases, that those excavations were large, or at least of considerable size.

42. The proportion which existed between the size of the tuberculous cavities and the adhesions, demonstrated the influence of the first upon the second. The large excavations constantly occupied the summit of the lungs, approximated

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* Vide Article "Pneumonia" among the "*causes*" of Phthisis.—(Translator.)

closely to their surface, and there only were found those dense resisting false membranes, which we have already described as either strengthening the sides of the cavity or constituting them entirely. This mutual relation between cavities and adhesions is also pointed out by other facts. Thus, in two cases where the lungs only contained two masses of tuberculous matter immediately beneath the pleura, the adhesions were confined to these points, and were formed by cellular prolongations of corresponding extent.

43. We have twice found a false membrane of moderate consistence lining the pulmonary and costal pleuræ, converted into tuberculous matter. Another case has presented us with an example of the same transformation, though of very limited extent, taking place in a false semi-cartilaginous membrane, which enveloped the summit of one of the lungs.

44. These adhesions were the consequence of chronic inflammation of variable duration; and, as we shall hereafter see, the period of its commencement could, in many instances, have been determined by the history of the patients.

45. In cases of other chronic diseases, this was not always the fact, and in the majority of instances we were unable to assign any cause for the adhesions which existed. We have found them 35 times out of 110, and in 12 cases they were universal, either on both or only one side of the chest. Although this proportion is considerable, it is still very inferior to what we find in cases of phthisis (41);—an additional proof of the influence of tubercles in the production of adhesions. But what, under this class of facts, is altogether peculiar to phthisis, is the semi-cartilaginous envelope covering the summit of the lungs, and the transformation of false membranes into tuberculous matter.

46. As we have already remarked, in speaking of pneumonia, the invasion of pleurisy coincides in a large proportion of our patients with the period of extreme weakness and emaciation. We have observed it in one-tenth of the cases.—The lung or costal pleura, frequently both, were covered to a greater or less extent by a soft, yellowish, false membrane, of variable thickness; there was an effusion of a certain quantity of a serous reddish fluid, limpid or otherwise, or even completely purulent. The characters of the alteration indicated its recent

nature, and the history of the symptoms proved it could not date farther back than nineteen, twelve, eight, or three days before death.—(287.)

47. Patients dying from other chronic affections, have presented the same alterations, preceded by similar symptoms, in the last periods of life, only the proportion was rather less,—one thirteenth. From what has been said, we may conclude that pneumonia and pleurisy are frequently developed in the last period of phthisis and other chronic diseases; sometimes resulting from evident causes, as the application of cold to the surface of the body, but most frequently without any appreciable origin. Their progress is rapid, and they augment the number of causes which hasten the death of consumptive patients; they also form another argument for being more watchful in our treatment of protracted cases, when near their termination, showing the necessity of protecting the patient from all those external influences calculated to produce either of the complications above mentioned.

48. We have also frequently observed in the cavity of the pleuræ, an effusion of *clear fluid*, in quantity from a pint and upwards. This effusion which took place in the tenth part of our cases, came on very rapidly. Of this we were convinced in two instances, where the thorax gave every where a clear sound on percussion thirty-six hours before death, but where two pints of clear serum were afterwards found in one side of the chest.

The same effusion took place at the close of other chronic diseases, and excepting affections of the heart, was present in one-fourth of the cases. This difference of proportion corresponds to what we have remarked with regard to the adhesions of the lungs to the pleuræ, in patients dying from phthisis and other chronic affections. It seems to indicate that this species of hydrothorax is unconnected with the nature of the disease.

ARTICLE III.—*Of the Epiglottis, Larynx, and Trachea.*

49. Of these three continuous organs, parts of the same apparatus, analogous in their structure, and susceptible of the same alterations, the larynx alone has attracted the attention

of observers in the history of phthisis. Its ulcerations have been described, but those of the epiglottis have been scarcely mentioned, and those of the trachea almost entirely overlooked. The cause of this omission is no doubt owing to the fact, that there are frequently no symptoms whatever to announce this alteration, and also to the practice among many medical men of examining those organs only whose functional derangement was more or less prominent during life. Be this as it may, the ulcerations of the epiglottis are not uncommon in phthisis; they indeed are almost as frequent as those of the larynx, for in 102 cases in which the respiratory tube was carefully examined, they existed with those of the larynx and trachea in the proportion of 18—22—31.

§ 1.—*Ulcerations of the Trachea.*

50. When the mucous membrane of the trachea was ulcerated it was generally of a bright red colour. Sometimes, however, and especially when the number of the ulcerations was inconsiderable, it retained its natural whiteness. This was the case in six out of the thirty observations where we have remarked the alteration alluded to; and one of them was an example of very extensive ulceration. It is in the lower half of the trachea, that is, in that portion of it where ulcerations are the largest and most numerous, that the redness was most strongly marked. There were associated with it, in about one-fifth of the cases, a slight thickening and inconsiderable softening of the mucous membrane.

51. When the ulcerations were small, they were usually equally scattered throughout the circumference of the trachea; they were of a round or oval form, varying from a line to a little more or less in diameter. The mucous membrane round their edges was destroyed, their bottom formed by the cellular tissue slightly or not at all thickened, their edges flat, and their general appearance that of being artificially produced. It is now easy to conceive how these small ulcerations, with their flattened edges and pink colour, should have escaped notice, when the trachea was not minutely examined or previously washed.

52. If their dimensions were more considerable, they were

unequally distributed. The largest were found in the fleshy portion of the trachea. The mucous membrane retained in their vicinity, as also in that of the smaller ulcerations, the thickness, colour, and consistence which it possessed in the rest of its surface. The sub-mucous layer, indurated and thickened, formed their lining, or even this was either totally or partially destroyed, and the muscular coat exposed in the corresponding point.—(*Obs.* 15, 16.) This last tunic, when thus denuded, was in two or three instances thicker than natural, and in a small number of cases we found it more or less deeply ulcerated.—(*Obs.* 16.)

A certain number of the cartilaginous rings were sometimes completely denuded, diminished in thickness, and either partially or *wholly* destroyed.—(*Obs.* 15, 16.) This last alteration we have only observed twice—(*Obs.* 16); while we have seen in five cases the complete destruction of the mucous membrane of the trachea, throughout almost the whole extent of its fleshy portion.

53. The preference which the large ulcerations almost constantly exhibited for the posterior portion of the trachea, may perhaps find a solution in the constant passage of the sputa, and their more or less prolonged contact on this particular part. For, if too exciting liquids produce inflammation and ulceration of the mucous membrane of the stomach, we might expect the same effect on the trachea from the no doubt irritating influence of the excreted fluid. Besides, it would be difficult to explain on any other grounds why the ulcerations of the epiglottis exist (as we shall prove farther on to be the case) only on its lower surface, the one most frequently in contact with the sputa.*

But while we admit that the expectorated matter may have a decided influence both as to the extent and seat of the ulcerations of the trachea, we must recognise also some other cause;

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* M. Broussais, in the 2d vol. p. 176, of his *Histoire des Phlegmiases Chroniques*, has ingeniously anticipated the results of M. Louis. He says, "La phlogose désorganisatrice de la membrane trachéale et laryngèe se présente en troisième ligne (of frequency). Je n'en ai pas étudié les causes determinantes d'une manière bien particulière; mais on presume *assez que les particules âcres et fétides qui s'elèvent des foyers purulents doivent en faciliter* efficacement l'action." (Translator.)

for they are far from being always in proportion to the irritating properties of the expectoration, nor do they constantly exist even when the affection of the lungs is considerable, and the tubercular excavations of long standing. We may also add that the bronchi, in which the expectorated matter circulates and remains a greater or less time, are less frequently (we have only found it seven times), the seat of ulceration than the trachea. It is, however, possible that this number is underrated, for, with respect to the present subject of enquiry, we have never examined the bronchi with the same attention as the trachea.

54. In one-third part of the cases, where this organ was free from ulceration, its mucous membrane was of a red colour, increasing in intensity as you approached the bifurcation. It was still more marked in the muscular portion than elsewhere, so that it pursued the same course as the ulcerations, and no doubt partly depended on the contact and retention of the sputa in the trachea.

§ 2.—*Ulcerations of the Larynx.*

55. These were, as we have already remarked, less frequent than the preceding, seldom unaccompanied by them, and present in one-fourth part of the cases. Twice only we have observed them alone, and in many instances they sensibly varied in their characters from those of the trachea. Seldom superficial or presenting the appearance of artificial formation, they were generally of a certain depth, more or less irregular, and from one to two lines broad. Their edges, of variable consistence, were sometimes lardaceous, of greyish or whitish colour. The mucous membrane was pale and perfectly sound in the rest of its extent.

56. The most frequent seat of these ulcerations was first the junction of the vocal cords, where they were sometimes superficial; then the vocal cords themselves, especially their posterior part; we have only once observed a very small ulceration at the base of the arytænoid cartilages, the superior part of larynx, and the interior of the ventricles.

In some instances, one or more of the vocal cords were completely destroyed, and the base of the arytænoid cartilages laid bare. When this was the case, the cartilages themselves were unaffected.

§ 3.—*Ulcerations of the Epiglottis.*

57. We have remarked them eighteen times, or in about one-sixth of the cases, and five times unaccompanied by those of the larynx and trachea. This complication, however, existed in the other cases, so that all the examples of ulceration enumerated in this and the two preceding paragraphs, have been collected from forty-four cases, about four-tenths of those whose history we are now analysing.

Sometimes superficial, the ulcerations of the epiglottis were generally of a certain depth, not however (with two exceptions) penetrating to the fibro-cartilage beneath. The mucous membrane surrounding those which were superficial, did not appear evidently thickened; when the ulcerations were deep, it was rather harder and thicker than in the natural state, either in the immediate vicinity or in the intermediate space. It was sometimes of a rose colour, and in many instances the layer separating it from the fibro-cartilage, was more or less puffy in its texture.

58. The ulcerations existed as we have already remarked, almost solely on the laryngæal surface of the epiglottis, and most frequently on its lower half. Once only we encountered them on its lingual surface.—(*Obs.* 12.) Their dimensions were from one to two lines—often larger.

In some cases the mucous membrane of the epiglottis was destroyed over the whole extent of the inferior surface.—(*Obs.* 8, 14, 15.) In others, the cartilage was destroyed in portions of its circumference, giving a festooned appearance to the epiglottis. This we have seen four times. A fifth case has presented an example of complete destruction of the epiglottis.—(*Obs.* 13.)

59. We have in no one instance discovered tuberculous granulations in the substance, or on the surface of the epiglottis, larynx, or trachea; inducing us to believe that we ought to consider inflammation as the most frequent cause of the ulcerations.

Another fact of importance to remark is, that these ulcerations were twice as frequent in men as in women. Thus, in an equal number of cases; the women only presented six examples of this state of the epiglottis, seven of the larynx, and nine of the trachea, out of eighteen, twenty-three, and thirty-one cases; and as the proportion is nearly equal for the three kinds of ulcerations, it is probably not the effect of hazard.*

60. In making an accurate summary of the state of the epiglottis, larynx, and trachea, in cases terminating fatally from some other disease than phthisis (particularly chronic affections), we have found in *one hundred and eighty instances*, *one* example of ulceration of the larynx, and two others, when both the larynx and trachea were similarly affected. In the first case, the patient had died of pneumonia, and the lungs presented no trace of organic ulceration. In the two last they died of cancer and softening of the brain, and had tuberculous cavities in the lungs. From what has preceded, it follows that we must consider the ulceration of the larynx, and especially those of the trachea and epiglottis, as alterations peculiar to phthisis.

With the exception of three cases of œdema of the glottis, (*Obs.* 46,) the changes we have described are the only ones these organs have presented to us in phthisical patients.

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* The whole of this section may be considered as peculiarly valuable, and contains decidedly the most and only accurate account of the state of these organs in phthisis, which we yet possess. The comparative analysis of facts proving that their lesions are almost special to this disease is very valuable, and gives a just idea of what is still frequently described as "laryngæal phthisis." There are some interesting researches on this subject in the twenty-second letter of the second book of Morgagni, on the causes and seat of diseases. The reader must not forget that the author's conclusions are confined to *chronic* diseases, and where *syphilis* is not present. The latter has a special action on these organs, and in typhus and some other *acute* affections they are also occasionally ulcerated. (Translator.)

CHAPTER II.

ORGANS OF CIRCULATION.

ARTICLE I.—*Of the Heart and Pericardium.*

61. Phthisis has been considered as one among the numerous causes of aneurism of the heart; but this opinion does not appear to us to be supported by facts. In 112 cases where death was caused by phthisis, we have only found *three* examples of an evident increase in the size of the heart. This increase was confined to the left ventricle, and might be estimated at one-third or one-fourth of the normal size of the organ; none of the individuals who *presented it had experienced aneurismal symptoms.** In the great majority of cases, the heart was under its usual dimensions, being not more than one-half or two-thirds of its natural volume.

This last fact is easily conceivable, from the general emaciation and decrease of the fluids; but we cannot apply the same reasoning to the *dilatation* of the cavities of the heart; for the impeded state of the pulmonary circulation, to which it might be attributed, is gradually produced, and consequently proportionate to the circulating fluid, and on that account is not to be considered as a cause of dilatation. Let us add that, if this obstruction was to cause increase of the heart's volume, it would take place on the right side only, which is contrary to observation.

62. Diminution of the volume of the heart was evident in the great majority of instances, both in patients whose disease

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* The absence of *symptoms* when the anatomical characters of disease are present, is not unfrequently the case with the heart; and to prevent this being brought forward as an argument against the utility of pathological researches, it is only necessary to mention that the variations of size in this organ, when corresponding with the obstructed state of the functions it is destined to discharge, are rather elements of *health* (if we may so express ourselves) than of disease. *Symptoms* only appear when the harmony of organ and function is destroyed, either by the change in the former being prolonged beyond the necessity which produced it, or by some primitive aberration in the organ itself from its healthy state. Of course this remark only applies to increase or diminution of natural, and not of *morbid* structure. (Translator.)

had progressed slowly, and in others where the fatal termination was not protracted beyond a few months.*

63. The heart was in general of good consistence. We have, however, found it more or less flaccid and soft in about one-fifth of the cases, and this diminished consistence was not proportionate either to the duration of the disease or the age of the patient. At other times it was firmer than usual, which generally coincided with the hypertrophy of the parietes of one or other of its cavities.

64. This thickening was remarkably developed in seven cases; six times in the left, and one only in the right ventricle; inversely to what would be the case were an obstacle to the pulmonary circulation the cause of the phenomenon. In these different instances the cavity of the heart was diminished, though the volume of the organ had not sensibly changed; it was sometimes even less than natural; and we might in this case admit that the apparent increase of thickness arose not from hypertrophy, but from the contraction of the parietes on themselves. We frequently observe the same fact in the intestines.

65. Diminished thickness of the ventricles was less frequent. We have only observed it twice on the right, and four times on the left side; so that, under whatever point of view we consider the cavities of the heart, we find that those of the right side less frequently deviate from a healthy state than those of the left; and all that we can possibly conclude respecting the influence of phthisis on the heart, is, that its volume is diminished, in common with that of the other organs.

66. In no instance have we found organic alteration in either of the cavities of the heart; by which we may infer that the

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* M. Broussais, to invalidate the author's conclusion relative to the state of the heart in phthisis, says, that he has observed *hypertrophy of the heart* to be sometimes the *cause* of phthisis, and that it *afterwards* becomes atrophied with the other organs. The proof of this would require numerous detailed facts; the mere assertion of what would be extremely difficult to substantiate, is valueless.—(*Examen. des Doct. Med.* vol. iv. p. 338.)—Dr. Clarke, in his work on *Climate*, p. 318, says, "In hereditary cases of phthisis, I think the powers of the heart are under the ordinary standard. A *small feeble heart* I consider a strong predisposing cause of consumption." It will ever be thus with what we call *facts* in medicine, when assertions have no other basis than the impressions of unrecorded experience. (Translator.)

mere activity of an organ is not sufficient to explain the more or less frequent alterations of tissue of which it is susceptible.

67. We have twice met with adhesion of the pericardium to the heart. In a third instance, the membrane connecting them was a line in thickness, of moderate consistence, and enclosing in its substance a small quantity of clear fluid. The patient, who presented this example of pericarditis, (*Obs.* 19,) experienced great palpitations, and the pulse was extremely irregular, during the twenty-three days he was submitted to our observation.

In a tenth part of the cases, there was an effusion of five or six ounces of serum in the pericardium.

68. At the termination of other chronic diseases, the state of the heart was nearly the same as in phthisis. Out of eighty cases, we found it larger than natural in five; in nine, it was flaccid and soft; in eight, the left ventricle was hypertrophied; and in seven, it was diminished in thickness, whilst the right ventricle presented only a single example of either of these deviations. Lastly, the volume of the heart was less than natural in thirty cases, or nearly one-third—a higher proportion than in phthisis. This difference is to be attributed to the presence of cancerous affections, especially of the stomach and uterus, in which the diminished volume of the heart was both more frequent and more strongly marked than in any other disease whatever.

Article II.—*Of the Aorta.*

69. In the majority of instances it was healthy, and in one-fourth of the cases more or less red, either partially, or over the whole of its extent. This redness penetrated to a variable depth in the middle tunic, occupying the whole circumference of the vessel, whatever the quantity of blood it might contain; so that we could not consider it the effect of imbibition. It sometimes extended into the principal ramifications, particularly into the carotids. With one exception, it was confined to patients between the ages of 20 and 32.—(*Obs.* 1, 19, 30, 40, &c.)

70. The organic alterations of the aorta; the soft and yellow, or white and cartilaginous patches; the ulcerations so frequently resulting from them; and lastly, the osseous deposits were

rather less frequently observed than the redness; they were only present in one-sixth part of the cases, either separately or combined, and in individuals from the age of 35 to 65. In general they were more advanced in their development, and occurred more frequently at the bifurcation of the aorta, than at any other point.

71. In consequence of the diminished quantity of the circulating fluids, it was natural to suppose that the arterial system, especially the aorta, would present a less considerable volume in cases fatal from phthisis than from acute affections. This difference was actually found to exist, though less marked than we might at first have presumed. Thus, in twelve cases from 20 to 30 years old, dead from typhus, the aorta had for mean dimensions, counting respectively from the parts corresponding to the free edge of the sigmoid valve, from one inch below the origin of the left subclavian, one inch above the cæliac trunk, and at the point of bifurcation into the two iliacs, 28 lines 9-10ths; 20 lines 4-10ths; 17 lines 9-10ths; and 13 lines 6-10ths; whilst, in an equal number of phthisical patients of the same age, and measured in the same points, it presented 27 lines 4-10ths; 19 lines 3-10ths; 16 lines 7-10ths; and 12 lines 6-10ths; a difference, though certainly slight, yet however, real and proportioned in all points to the volume of the artery; so that, where the dimensions were the smallest, the difference was reduced to precisely one line.*

We have instituted this comparison in subjects of the same age, because the aorta at different periods of life varies greatly in its dimensions. Thus, from the age of 40 to 50, it was 34 to 35 lines wide at the part corresponding to the free edges of the sigmoid valves, in cases fatal from acute diseases; it was 32 lines wide in cases of phthisis, and only 30 in individuals of the same age dead from cancer; these differences existed throughout the whole length of the artery, proportionately to its diameter, and the last fact merits particular attention, as it coincides with our previous remarks on the smallness of the heart in cancerous affections.

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* The inequality of the aorta in the portion comprised between the left subclavian and the cæliac trunk, proves that this artery is not composed of a succession of cylinders, but that it is really *cone* shaped. We have established the same fact for the femoral, the primitive, carotid, and some of the smaller vessels. (Author.)

A valuable memoir will appear on this subject by M. Bizot, in the first volume of the *Societé Medicale d'Observation*, to be published the ensuing winter. (Translator.)

72. The lesions of the aorta, which we have just enumerated, were present after other chronic diseases, but not in the same proportion. The redness existed in one-eighth part of the cases, and the organic alterations in one-half. This difference might favour the supposition that there was some connexion between the different states of the aorta and the nature of the disease, but the consideration of the *age* explains all. In short, whether redness of the aorta was observed after phthisis or any other chronic disease, it was always in individuals from 20 to 35 years of age; and we must recollect that the majority of phthisical patients die in the earlier periods of life, while it is generally at a more advanced period that other chronic diseases are fatal.*

73. The frequency of organic lesions of the aorta, contrasted with the great rarity of those of the heart, confirms what we have previously mentioned, viz. that this kind of alteration is not always in proportion to the activity of the functions of an organ; for those of the aorta are almost wholly mechanical.

74. When the internal membrane of the aorta was red, it was not thickened; but sometimes, in the points where this tint was deepest, we have found it less consistent, and more easily separated from the middle coat than in a state of health. The latter, even when coloured, offered no similar alteration; and as redness (usually the only appreciable change of the internal membrane,) is not sufficient to characterise inflammation, it seems more prudent, before coming to a decision, to await additional facts. M. Bertin, indeed, in his work on diseases of the heart, relates a case in which he found the internal membrane of the aorta of a bright red, and lined by a coagulated membranous exudation; or, in other terms, evidently inflamed. But the author has confined himself to the descrip-

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* In 350 cases, fatal from a great variety of diseases, we have only found two instances of organic disease of the heart, and it consisted each time of a partial transformation of its tissue into cancerous matter. (Author.)

tion of the redness, and has omitted to mention the consistence or thickness of the arterial coats; so that his observation, in other respects so interesting, cannot sanction any general conclusion as to when the redness we are now considering may be regarded as inflammatory.*

With respect to the yellow or white and cartilaginous spots, of which we have already spoken, their origin seems still more obscure. We only meet them after a certain period of life, (36 or 40), and they are then more or less frequent in almost every instance. From this it appears they are regulated by primitive laws, common to all, and the natural consequence of age. No symptoms disclose their existence, and we do not see on what foundation they can be regarded as inflammatory products. To establish such a conclusion, it would be necessary, we think, to demonstrate that there is not, and could not be, any organic lesion independently of inflammation.

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* We would refer our readers to an able article by Laennec, p. 644, on the redness of the lining membrane of the arteries; to Andral's (*Clin. Med.*) and to a memoir by M. M. Rigot and Trousseau, in the *Archives Gen. de Med.* vol. xii., and *Gendrin. Hist. Anat. des Inflam.* vol. ii. p. 9. There is every reason for supposing the phenomenon, when not attended by other changes, to be the result of imbibition. The state of the blood at the moment of death, the temperature, and the free or embarrassed state of the respiratory functions, seem among the most active causes of the appearance in question. By Bouilland, (*Dict. de Med. Prat.* vol. iii.) Bertin, Kreysig and Frank, it has given rise to a theory of *fever*, which, with the former at least, is a kind of arteritis. The various opinions entertained on this question affords a striking illustration of the pliability of *facts*, when arranged in the support of some favourite doctrine. M. Louis (Vide *Examen.* p. 5,) has since concluded from the analysis of a great number of fatal cases from a variety of acute affections, that the redness of the aorta is a special phenomenon of imbibition, depending on an alteration of the blood,—of the arterial tissue, or of both, in certain cases. (Translator.)

CHAPTER III.

THE DIGESTIVE ORGANS.

ARTICLE I.—*Of the Pharynx and Œsophagus.*

75. They were almost constantly healthy.

In eighty cases the only alterations we have observed in the *pharynx* were ulcerations in two instances. These were small, numerous, and nearly uniformly distributed over the whole of the mucous membrane, which was slightly thickened in the intervening portions.—(*Obs.* 13, 29.)

76. In two other examples we have found ulcerations in the œsophagus. In one of these but a single ulceration, five lines broad and situated in the central part of the organ, could be observed. It was lined by an extremely thin layer of cellular tissue, and round its edge the mucous membrane was thickened and detached with the subjacent layer over a space of two lines. In the other instance, there were numerous minute superficial ulcerations, as if artificially produced.—(*Obs.* 34.)

77. We have frequently seen the internal surface of the œsophagus lined by a kind of broken up false membrane, very much resembling those apthous exudations so frequent in the interior of the mouth, and of which we shall hereafter speak. (354.) Here, the epithelium had disappeared; but the mucous membrane presented no alteration in colour, consistence, or thickness.—(*Obs.* 30.)

78. The lower portion of the œsophagus was in three cases softer and thinner than usual; this state of the parts equally extending to all the membranes, and also existing in the stomach.

79. We have never detected any symptom which could be referred, either to the ulcerations of the pharynx, to those of the œsophagus, or the diminished thickness of its lower portion. The same observation may be made in regard to the soft apthous membrane already mentioned, unless indeed it can be considered as the cause of the dysphagia which existed in one instance for a considerable time.—(*Obs.* 30.)

80. In the post mortems of individuals dead of many other chronic affections, there were neither ulcerations or thinning

of the pharynx or œsophagus. In cases fatal from acute diseases we have never found ulcerations of the mucous membrane of the latter, except in typhus fever. The apthous secretion, of which we have spoken, was present more or less frequently after all chronic affections.

ARTICLE II.—*Stomach.*

§ 1.—*Of the Volume and Situation of the Stomach.*

81. In both these respects the changes were sometimes remarkable. Out of ninety-six observations, when they were carefully noted, in nine the stomach was twice or three times its natural volume. In six of these cases its great curve was on a level with the iliac crest.—(*Obs.* 18, 19.) In the other three it descended only a little below the umbilicus. In all the liver was voluminous, overlapping more or less the anterior surface of the stomach.

82. This considerable displacement and increased volume of the stomach, are, if we may so express ourselves, peculiar to phthisis. They are rarely observed in cases fatal from other affections, which may lead us to presume that they are for the most part to be considered as the consequence of repeated shocks caused by the cough.* Out of 230 cases of various chronic and acute diseases we have only seen it in two instances. One was a case of diseased heart—the other caries of the vertebræ. In both the great curvature of the stomach descended as low as the superior iliac spine, the liver was also of large size and low down; so that whenever we have encountered this combination there was a constant relation between the liver and stomach.

83. The alterations of the latter were principally in the

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* The effect of cough on the dilatation of the stomach may certainly be questioned, both from the physical laws which regulate the abdominal cavity, and the fact that in phthisis the cough is not so violent or so chronic as that accompanying some other thoracic affections. In one remarkable instance, in the wards of M. Piorry, at La Pitié, the stomach descended nearly to the pubis (which was ascertained by percussion and change of position, after the patient had taken a large quantity of fluid) and here there were no symptoms of thoracic disease. (Translator.)

mucous membrane. This was both thinned and softened—sometimes even destroyed; in other cases it was more or less red, and occasionally thickened in its anterior surface; while again in others the redness, accompanied by considerable softening, existed only in the left extremity. Ulcerations were sometimes found; but more frequently there was a remarkable *mamillated* * appearance of the mucous membrane. We shall now successively describe their alterations.

§ 2.—*Softening with diminished thickness of the Mucous Membrane of the Stomach.*

84. This condition of the mucous membrane, which we have already described,† was present in about one-fifth of the cases,

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* What this term includes will be seen by reference to paragraph 94.—(Author.)

† Vide *Louis sur Diverses Maladies*, Paris, 1826. The memoir referred to is founded on 450 post mortems of patients in the wards of M. Chomel: the morbid alteration forming the subject of this section, was present in one-twelfth of the cases taken indiscriminately. This result was confirmed by subsequent facts. In 200 cases, fatal from chronic diseases, 33 presented the lesion in question; 21 were women, 12 men. Out of 115 cases of acute affections, this condition of the stomach existed in 12. In one-sixth of the chronic cases it was not indicated during life by any symptoms. The alteration was always more frequent in *women* than *men*, which seems to prove that the influence of strong stimulating drinks is not the most usual or energetic cause of serious lesions of the gastric mucous membrane. This idea is strengthened by the examination of facts where corrosive substances have been swallowed, but not in sufficient quantity to cause death. Though occasioning the most violent symptoms, the functions of the stomach are perfectly re-established after a few days. Nearly all the facts in *Orfila's Toxicology* may be cited in proof of this; 200 patients, in the venereal hospital of Paris, were poisoned by an accidental overdose of corrosive sublimate, of which the minimum was ij. to iij. gr. Atrocious epigastric pains, vomitings, and constriction of the throat followed;—but *all* got well after a few hours by the use of emollient albuminous drinks. In ten or twelve there were slight epigastric pains during a fortnight. Not *one* was attacked with acute or chronic gastritis of any duration. May we not conclude that the *apparent* causes of gastritis are only secondary, and that this disease requires a very marked *predisposition*? Are not the results of stimulants on the stomach often exaggerated? Is there not a marked difference between a gastritis from an *external* and an *internal* cause? Authors do not appear to have sufficiently insisted upon this point, and to our

or nineteen times out of ninety-six. It was most frequently observed in the upper part; and especially in the large extremity of the stomach. It very frequently extended over half of the mucous membrane, or still farther, while it was occasionally bounded to an extent not exceeding eight or ten square inches.—(*Obs.* 1, 3, 4, 7, 26, 27, 32, 35, 39.)

85. The affected portions had a pearly or slightly yellow aspect, were destitute of mucus, and remarkable for the great number of large and usually empty vessels which were occasionally filled by a very dark coloured blood. They were flattened, forming more or less evident elevation of the mucous membrane. These peculiarities were obvious, and at once indicated the seat of the morbid alteration we are now considering. In these points the mucous membrane was pale, semi-transparent, sometimes greyish, or of a dull red colour. It was extremely softened; often not firmer than moderately viscous mucus. Its thickness was nearly that of the mucous membrane of the small intestines; in some cases it was partially destroyed. Frequently one or other of their modifications predominated. A comparative section of the diseased and healthy portions, proved the great relative difference of thickness.

86. Instead of constantly occupying a continuous surface, the alterations we are considering sometimes assumed the form of bands, but in this case the deviation from the healthy state was not so strongly marked. These bands were from two to three inches long, of similar or sometimes greater breadth, and were approximated to each other, the intermediate mucous membrane retaining its natural thickness.

87. The subjacent cellular tissue was usually sound. In four instances only, it was completely softened, yielding to the slightest force, and both the muscular and peritoneal coats were similarly affected in the corresponding points. Thus, we have

own mind it is at once a quietus to many favourite theories on gastritic inflammation, and a strong reason, for considering as merely accidental complications, many local changes, which have been frequently regarded as the *cause* of the general symptoms instead of as one of their effects. This is, however, not the place for extending our remarks on this subject: we may observe that in the above cases the results of M. Louis as to the correspondence between the *tongue* and the stomach, mentioned in another part of this work, were fully confirmed. (Translator.)

frequently found the stomach perforated, notwithstanding our employing the greatest precaution, when detaching it from the neighbouring parts; while the absence of all effusion into the peritonæum proved, that the perforation could not have existed during life.—(*Obs.* 7, 32.)

88. In the majority of instances the mucous membrane adjoining the softened part was mamillated, of a red or greyish colour, over a considerable extent, (*Obs.* 1, 4, 35,) occasionally thickened or ulcerated; and sometimes, though very rarely, the thinned and softened portion was continuous with another equally thin, but of a bright red colour, and becoming gradually thicker.—(*Obs.* 39.)

89. When there was redness, thickening, and sometimes softening of the mucous membrane, the existence of inflammation was evident. The mamillated state, united to a greyish colour and ulcerations, justified, as we shall hereafter see (94,) a similar conclusion; so that in more than one-half of the cases, the thinned, softened, and discoloured mucous membrane was continuous with a part evidently inflamed. From this it is natural to suppose that softening and diminished consistence are among the effects of inflammation; and what renders this conclusion still more probable is, that when these were alone present, the symptoms observed were those of gastritis. Diminished thickness and paleness of the mucous membrane are not opposed to the idea of inflammation, for we daily see, after the application of a blister, the skin become thin and completely destroyed, and we might expect discoloration to accompany approaching destruction.* We have more frequently remarked this state of the stomach in women than in men (in the proportion of twelve to seven), which seems to indicate that the most common exciting causes are not excesses in eating, women being less addicted to them than men.†

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* It is rather amusing to find M. Broussais admitting that in this section, the author is "de bonne foi," *because* he does not hesitate to explain these organic lesions by *inflammation*: i. e. whenever he agrees with M. B., he is right, when he differs, he is wrong. This is, throughout, the *spirit* of M. B.'s strictures.—Vide *Examen.* vol. iv. p. 339. (Translator.)

† The author's subsequent experience, as to the softened and thinned state of the gastric mucous membrane, (Vide *Affect. Typhoïde,* vol. i.

§ 3.—*Redness combined with thickening, with a mamillated state or softening of the Mucous Membrane, and occurring in the anterior portion of the Stomach.*

90. In eight cases out of ninety-six, we have found this species of alteration. The mucous membrane was sometimes smooth, sometimes unequal and mamillated, and almost constantly covered by a very copious and tenacious mucus, which was here always more viscous and abundant, than in any other part. In some instances, the consistence of the mucous membrane was diminished, and its thickness greater than natural. In one of these, the red and thickened part was lined by a soft yellowish false membrane, not extending beyond the part affected. This modification, evidently inflammatory, existed in individuals of different ages, and the duration of whose affection had varied from three to five years; it was also much more frequent in women than men, in the proportion of seven to one.—(*Obs.* 10, 18, 29.) In the rest of its extent the mucous membrane approximated more or less closely to a healthy state.

91. The situation and volume of the stomach had undergone some remarkable changes; its dimensions were very considerable, extending in four cases to the iliac crest, while in others it was enlarged in size without so marked a change of situation. In *all*, it was covered to a considerable extent by the liver, itself either larger than natural or else descending below its usual limits; so that we must almost necessarily admit that the liver exercises a certain influence over the inflammation of the mucous membrane of the stomach when limited to its anterior surface.* Having once admitted this influence, it would be

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p. 183,) inclines him still more to the belief, that in some instances it is not depending on inflammation; this supposition is founded upon the facts, that around the softened parts there are no traces of inflammation, and the submucous layer is equally softened and destitute of all inflammatory appearances. He thinks, after the researches of Dr. Carswell on this subject, that it is doubtful how far *chemical* changes may take place in this membrane during life. (Translator.)

* This conclusion of our author is the reverse of M. Broussais. Let the reader impartially compare the state of the mucous membranes and that of the glands attached to them, and he must admit that the axioms of this pathologist are far from being proved. (Translator.)

easy to understand why women, who are subject to enlargement of the liver, so much more frequently than men, should be proportionably liable to this particular form of inflammation.

When we come to the description of the symptoms, we shall find, that in many patients the origin of the affection might be dated one, two, or even three months, before death.

§ 4.—*Redness with softening of the Mucous Membrane lining the great Cul de Sac of the Stomach.*

92. This alteration was present in seventeen out of the ninety-six cases we are analysing. The mucous membrane was usually of a dull red colour, sometimes a little thickened, and so soft that it would not bear removal in fragments of even the smallest dimensions.—(*Obs.* 14, 15, 19.) Though confined in a few instances to the neighbourhood of the cardiac orifice, the softening generally extended either over the whole or a considerable part of the great cul de sac. The remainder of the membrane was either healthy, or with an unequal mamillated appearance, and of a greyish or pink colour. There were occasionally small ulcerations.

93. This morbid condition of the stomach was very rarely accompanied by characteristic symptoms, but it was of too definite a nature to admit of any doubt as to its origin. For intense redness combined with softening and sometimes increased thickness, could only be the result of inflammation; and the absence of symptoms in the majority of instances would favour the idea that this inflammation was developed towards the close of life, in the same way as that of the pulmonary parenchyma and pleuræ. Doubtless, and we shall have occasion to repeat the remark, weakness does not prevent the manifestation of the majority of the pathognomonic symptoms, but it sometimes modifies their expression and decreases their number.* Thus

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* The author might here have remarked that *weakness* was only one of the causes by which the absence or imperfect manifestation of symptoms might be explained—the presence of *another disease*, is an important consideration, especially in those cases where its irradiated influence through the system causes extensive disturbance of all the functions. The instances are numerous where fatal disorganization has taken place almost unknown and unsuspected, while all the prominent symptoms

the pain which accompanies softening and diminished consistence of the mucous membrane of the stomach sometimes disappears several days before death; also pneumonia occurring in the last periods of phthisis is seldom accompanied by the yellow, rust coloured, viscous, semi-transparent expectoration; and frequently it is quite latent. We might make the same remark with regard to pleurisy. Now what takes place in inflammation of the substance of the lung and pleuræ, may and would naturally happen in that of the mucous membrane of the stomach; an additional motive for considering the morbid alteration we have been describing as resulting from an inflammation developed but a short time before death. Surely no one will look upon this redness and softening as a mere post mortem phenomenon; for the stagnation of blood does not produce the softening of our tissues, and we cannot suppose an identical morbid change to take place both before and after death.*

§ 5.—*The mamillated appearance and greyish colour of the Mucous Membrane of the Stomach.*

94. We have observed this appearance eighteen times, unaccompanied by the alterations we have just described; the mucous membrane instead of its natural, uniform, and velvet-like surface, presented prominences of different forms and dimensions, generally rounded, from one to two lines in diameter, resembling the fleshy granulations of wounds, and occasionally separated by deep fissures of variable length, and a line or rather less in breadth. It was almost always of a greyish colour, which was frequently mingled with a pale red tint. In some instances we have found it firmer and thicker than natural. It sometimes presented a few small ulcerations, which did not always involve complete destruction of the membrane.

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have directed the attention to some other affection. Cerebral and enteritic diseases may be cited as examples. The absence of symptoms in this particular condition of the stomach depends no doubt in a great measure on the *anterior surface* being alone affected. (Translator.)

* We have already expressed our opinion on the force of this reasoning. *Softening* may undoubtedly take place under both these conditions. (Translator.)

95. This granulated aspect existed in the very opposite states of distention or contraction of the stomach. On this account it could not be attributed to mechanical causes, and recollecting the diminished thickness of the membrane forming the ridges of which we have spoken—its ulcerations—its occasional partial thickening and almost constantly altered colour, we cannot but consider it as a pathological effect. A similar state of things, to which we may also add the granulated appearance, existing in cases where there was evident inflammation of the mucous membrane of the stomach, (as for instance when the anterior surface was alone affected) seem to indicate the inflammatory origin of the alteration we are describing; and doubtless, judging by the absence or indistinctness of the symptoms (339) and from the greyish colour of the membrane so frequent in chronic inflammation and round intestinal ulcerations, we may conclude its progress to have been slow and subacute.

§ 6.—*Ulcerations of the Mucous Membrane of the Stomach.*

96. We have remarked them in a twelfth part of the cases; they were generally small, few in number, and accompanied with some other morbid state of the mucous membrane; twice only there was absence of all complication. In one of these a single ulceration existed of two inches and a half of surface.—(*Obs.* 58.) In the other the ulcerations were small, but eighty in number.—(*Obs.* 20.) In all, with one exception, the mucous membrane retained immediately around the ulcerations the same thickness, consistence, and colour, which it presented elsewhere, so that they gave the impression of artificial formation. The exception mentioned, occurred in an individual who had, near the pylorus, an ulceration with everted edges, formed by the red soft and thickened mucous membrane, the subjacent layers being sound.

The submucous tissue which formed the bottom of the ulcerations was occasionally thickened; but it was only in the instance where one large ulceration existed, that it was partially destroyed.

When the ulcerations were unaccompanied by any other morbid change of the mucous membrane, we may conclude, from the history of the symptoms, that they dated from a period considerably anterior to the death of the patient. (336.)

§ 7.—*Some other Morbid changes of the Gastric Mucous Membrane.*

97. In ten cases, where there was no alteration of consistence or thickness, it was more or less red throughout its whole extent. This redness disappeared after two or three hours of maceration. In many instances symptoms of gastritis came on two or three days before death (*Obs.* 2); rendering it probable that this state of the membrane was produced by recent and slight inflammation.

98. We have four times seen the mucous membrane extremely softened in the greater part of the large extremity of the stomach, without any alteration of colour and consistence, or any evident symptoms of gastritis.

99. In one patient, who died on the day of his arrival at the hospital, the mucous membrane presented seven large elevations, nearly equally dispersed over its surface, from two to three lines wide and two lines high. Adjoining them the membrane was slightly red, of good consistence, and about one line thick. One inch below the cardiac orifice it was slightly prominent and raised for about an inch in extent by a bluish white fluid, rather viscous, imperfectly soluble in water, and contained in a number of small cells developed in the submucous tissue.

100. Lastly, in two phthisical patients we have found, in one, an example of cicatrisation of the mucous membrane of the stomach; in the other, the transformation of a small portion of the muscular tunic, into a cartilaginous structure;—a very rare alteration, and which we shall carefully describe when treating of the symptoms.—(*Obs.* 21, 22.)

On summing up what has preceded, we have found in ninety-six cases, where we have attentively examined and described the mucous membrane of the stomach, that it was—thinned and softened, 19 times; red and occasionally thickened, mamillated or softened on its anterior surface, 8; softened, and of a dull red colour in the great cul de sac, 17; mamillated, of a greyish colour, sometimes reddish, thickened, &c. 19; ulcerated, without other morbid change, 2; softened, but of natural colour and thickness, 4; of a variably intense red colour throughout its whole surface, with normal thickness and consistence, 6; raised up by a viscous fluid, &c. 1; apparently cicatrised, 1;—total 77. This result is equivalent to saying, that the mucous membrane was only in a state approaching to perfect health, nineteen times; or in a fifth part of the cases.*

101. The morbid changes we have just described are not peculiar to phthisis; we have seen them resulting from other chronic diseases, but in different proportion. In ninety-four individuals who died from various chronic affections, the mucous membrane of the stomach was—thinned and softened, 6 times; red, and with slightly marked inequalities on its anterior surface, 2; softened, and of a dull red in the great cul de sac, 6; variably red over its whole extent, but not softened, 18; mamillated, greyish, sometimes thickened or ulcerated, 16;—total 48. That is, it was more or less affected in one-half, whilst in phthisis, this took place in four-fifths. It may also be noticed, that while in phthisical patients the most considerable morbid change, (viz. softening, with diminished consistence, and sometimes destruction of the mucous membrane), was one of the most frequent, the contrary was the case in those who died from other diseases; so that it follows, from this comparison of facts, that phthisis is a predisposing cause to inflammation of the mucous membrane of the stomach, and that in its most intense forms.

ARTICLE III.—*Of the Duodenum.*

102. It seldom deviated from a state of health. Its mucous membrane was sometimes of a rose colour; it occasionally presented a greyish tint, owing to an infinitude of small black points, thickly dispersed over its surface. The mucous follicles were frequently very apparent, doubled or tripled in volume, but not altered in their structure. In three cases out of sixty, ulcerations were present. They were from a line to a line and a half in breadth, and in two of the cases of a pale colour, and from three to ten in number.—(*Obs.* 9.) In the

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* Andral says in two-fifths. (Translator.)

third instance, some of them were from two to four lines wide; their bottom blackish, and formed, as in the preceding cases, by the slightly thickened sub-mucous cellular tissue. The mucous membrane around them presented nothing worth noticing.

In both cases, where the ulcerations were smallest, there were some very minute cysts in the liver, containing a greenish and pulpy substance; but no connexion could be traced between the grey or pink colour of the duodenal mucous membrane, and the fatty degeneration of the liver.*

Once only have we found a fibrous tumour, similar to those of the uterus, and the size of a hazel-nut, in the muscular coat of the duodenum.

Examined after other chronic affections, the condition of this intestine was nearly the same as after phthisis; out of sixty cases, we have observed but one of ulceration.

ARTICLE IV.—*Of the Small Intestine.*†

103. Before describing the different lesions of the small intestines, we think it useful to fix the attention for a moment

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* This result of our author's observations calls forth the ire of M. Broussais, who suddenly ceases his commendations of M. L.'s accuracy, by calling in question his *veracity*.—(*Examen.* p. 341.) Leaving, however, M. B., we would remark, that the relative state of the liver and duodenum ought not to be overlooked. Laennec says, (p. 288), "I have seen but few well marked instances of inflammation of this intestine; I have frequently found the duodenum very red when the liver was sound, and the fatty disorganization of the latter present, when the duodenum was pale."—We are, however, quite aware that this evidence will avail little with certain individuals, who say, that if we cannot discover inflammation (where it *ought* to have existed, according to their *laws*), that it *was* there, but has disappeared. Matter of fact people do not pretend to such divination. (Translator.)

† There is a close analogy between many of the remarks made in this article, and those of M. Billard, in his work *On the Gastro-intestinal Mucous Membrane.* Without attaching undue importance to this portion of our undertaking, which is, in part, a mere confirmation of what is already known, we will mention, that our results had been submitted to M. Chomel several months previous to the publication of the above work; and instead of compressing part of our remarks, we have purposely left them unaltered, as an additional proof that accurate observation necessarily leads to the same results. (Author.)

on the mucous membrane, and to point out a peculiarity of structure generally overlooked, but which is always present in a state of health.

§ 1.—*Of the Mucous Membrane of the Small Intestine in its healthy state.*

104. In this condition the parietes of this intestine are very thin, semi-transparent; allowing us, when suspending them over the extremities of the fingers, to detect the small inequalities on the skin.

However, in this inconsiderable thickness are comprised the mucous, muscular, and peritoneal coat, united by a small quantity of cellular tissue. Whenever either of these layers is in any way altered, the semi-transparency disappears.

The mucous membrane is naturally white; rather thicker in the jejeunum than in the ileum, where it may be compared in this respect to a sheet of blotting paper.

105. If we slightly detach it with the scalpel, after making an incision, and then seize it with the extremity of the fingers or forceps, we can tear off fragments from five to ten lines long. This experiment is sufficient to indicate the natural firmness of the mucous membrane; and whenever similar fragments cannot be obtained with the same precautions, we may consider it as deviating, more or less, from the healthy state.

106. The uniform structure of this membrane is interrupted, at unequal distances, by oval patches of very variable dimensions. They may be observed in the three lower fourths, and sometimes throughout the whole of the intestine. From twenty to thirty, and occasionally more, may be counted. Situated on the side of the intestine, opposite to the mesentery, they are from one to four inches in length, by eight or ten lines wide, gradually increasing in number and size as they approach the cœcum; they are very slightly elevated, though sensible both to the sight and touch, and have two, three, or four times the thickness of the surrounding mucous membrane. They are completely opaque, of a white or greyish colour, and sometimes studded with small blue spots. They do not offer the villous surface of the rest of the intestine, but present a great number of white or yellowish granulations, smaller than millet-

seed. After detaching these glandular patches with the precautions already described, the granulations are equally visible on their adherent surface; and on regarding them between the light and the eye, their interstices appear thin and demi-transparent, very similar to the other portions of the mucous membrane.

107. This structure, which is not always easily demonstrable, in certain pathological states of the membrane becomes most distinct; as, for instance, when it assumes a deep red colour, in consequence of an affection of the heart. Then, indeed, the granulated looking bodies already described retain their naturally white and yellowish colour, and, contrasted with the red and injected state of their interstices, are most distinctly visible: they then assume their true appearance, viz. a collection of small bodies, no doubt glandular, in the thickness of the mucous membrane.

108. The blue coloured spots so frequently observed are the orifices of the glandular granulations. At least, judging from what takes place in certain pathological cases, this appears highly probable, for when these bodies are greatly developed, the blue points are replaced by distinct openings, nearly equalling in size the natural volume of the gland itself.

109. The general appearance of these patches are subject to variation, from differences in the arrangement of the crypts. If these are confluent, the interstices on which their distinctness depended become obliterated; but they are not, on this account, less easy to recognise, their colour, opacity, and elevation, distinguishing them from the surrounding mucous membrane.

110. They differ also in the ileum and jejeunum, where they are interrupted by the valvulæ conniventes, giving them a depressed appearance, from the contrasted elevation of the valves. But since in the ileum they are white or greyish, opaque, and less interrupted by the valves, they are on the whole more easily distinguished in the upper than the lower portion of the intestine.

111. The whitish coloured, isolated granulations, almost constantly seen near the termination of the ileum, underneath the mucous membrane, are liable to the same morbid changes as the agminated glands, depending upon similar circumstances for their greater or less distinctness; their glandular nature is equally probable.

112. Although the dimensions of the patches increase as they approach the cœcum, it is not uncommon to find smaller ones interspersed with the larger. Their form, when this is the case, is more circular than oval. Near the cœcum they are very numerous, and frequently occupy the whole circumference of the intestine.

113. They are only partially affected by the pathological state of the mucous membrane which surrounds them.* We have already remarked that, where it was intensely red, in consequence of disease of the heart, the colour of the glands was natural. When it was thickened, no change took place in the dimensions of the patches, and their elevated appearance had either diminished or disappeared. In certain cases, as in typhus fever, for example, when the mucous membrane was frequently healthy, that covering the patches was greatly thickened; the glands were enlarged, and their orifices open. At first their structure was rendered more distinct; they soon, however, gradually softened, and while the subjacent cellular tissue daily increased in thickness, they ulcerated, and were at last completely destroyed. We can now understand why the ulcerations in typhus fever are oval or elliptical in their form; why they are found in the part of the intestine opposite to the mesentery, and why they almost invariably exist in the lower portion of the ileum. These agminated glands are also most frequently the seat of ulcerations in phthisis.† They are often exclusively so, the mucous membrane around them remaining

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* At this assertion of what *facts* have demonstrated, M. Broussais makes the following energetic appeal in behalf of his infringed laws. "It is impossible not to despise the author's (M. Louis') *prejudice*, (prevention), since it has been verified by many, and also by ourselves, during *twenty-seven years*, that the inflammation of the mucous membrane of the small intestines includes the inflammatory turgescence, alteration, and disorganization of the follicles!" (*Examen. Med.* p. 341.) It is most unfortunate that *facts* thus foster error. But they are indeed "stubborn things:" and, for ourselves, we confess that three years and a half of unbiassed and recorded observation have more value than twenty-seven years under opposite circumstances. (Translator.)

† The ulcerations of the agminated glands, in cases of *continued fever* and phthisis, may, we think, almost decide the question of whether they are mere *consequences* or *causes* of the peculiar symptoms of the former? (Translator.)

perfectly healthy. Lastly, it is in their centre that the perforations of the small intestines in acute diseases take place.*

§ 2.—*Pathology of the Small Intestine.*

114. The lesions were numerous; consisting of softening, thickening, redness of mucous membrane, small sub-mucous abscesses, semi-cartilaginous or tuberculous granulations and ulcerations.

115. The *softening* of the mucous membrane was not so frequent in phthisis as in other chronic diseases. Out of ninety-five cases, we have only met it eight times, and in three of these it was inconsiderable. In five others, the membrane was reduced to

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* Vide *Memoire sur la Perforation de l'Intestin Grêle—Recherches sur Diverses Maladies*, p. 136. Though the perforation of the small intestine, since our author's researches, has attracted very general attention, and has been specially studied by Messrs. Stokes and Graves, of Dublin, a summary of M. L.'s results may not be unacceptable to the reader.

He thinks that we may regard the perforation of the small intestine as *certain*, when, in the course of an acute disease, and under unexpected circumstances, the patient is attacked with a sudden and violent pain in the abdomen, which is increased by pressure, accompanied with a great change in the appearance of the patient, and succeeded by nausea and vomiting. He insists strongly on the aggravation of *the pain by pressure*, and its *rapid extension over the abdomen*, as means of diagnosis. We conclude that perforation has taken place in the *small* intestine, rather than in any other portion of the digestive tube, because in *acute* diseases, the former is incomparably the most frequent. In 150 cases of phthisis, it only occurred *once*. In 160 cases of other chronic diseases, *two* instances were observed. In some rare examples the symptoms are wanting, when the diagnosis is of course impossible. Perforations are perhaps more frequent than we generally suppose. Out of 450 post mortems, there were *twenty-two* cases of perforation; nine of the small intestine; eight of the lungs; two of aneurismal tumours; one of an abdominal cyst; one of an hepatic abscess. The examples of perforated stomach in chronic gastritis are numerous. Vide *Dr. Abercrombie on Abdominal Affections.*

Dr. Stokes, of Dublin, has proposed a mode of treatment in cases of perforation, and in many other circumstances where there is rapid prostration of the vital powers, consisting in large and frequently repeated doses of opium; the evidence adduced in its favour strongly entitle it to the practitioner's attention. Vide *Dublin and Medical Journal,* May, 1832. No. 2. (Translator.)

the consistence of mucus.—(*Obs.* 22, 32.) In all of these the softening occupied the whole of the intestine. In three cases it was associated with considerable thickening and redness; most evidently in these circumstances resulting from inflammation. In a fourth, there was thickening without redness. We have only once found it thickened, where it was neither red or softened.—(*Obs.* 19.)

In thirteen cases it was more or less red, while no alteration of consistence or thickness was observable.—(*Obs.* 28, 39.) Among five of these, the redness was universal; while in others it was confined to a limited portion; usually the last two feet.—(*Obs.* 41, 47.) The mesenteric vessels were never loaded with blood, so that the redness probably most frequently depended on some other cause than simple congestion.*

116. The granulations were, as we have before remarked, of two kinds. They sometimes presented all the characters of tuberculous matter; in others they were much harder and whiter, offering almost the firmness and aspect of cartilage. The volume of both was inconsiderable; on the average that of a middle-sized pea, but most frequently smaller: they were developed beneath the mucous membrane, and almost invariably accompanied by ulceration. The *semi-cartilaginous granulations* (*Obs.* 15, 29, 35,) were in general much more numerous than the others; sometimes they were dispersed through the whole of the intestine, with intervals varying from one to three inches. When thus universally present, they increased in number and size as they approached the cœcum. At other times they were much more numerous near the duodenum, and in the upper third of the intestine, their number gradually diminishing in the lower portions. When small, they had scarcely the volume of a pin's head, were slightly adherent to the cellular layer, and the mucous membrane surrounding them was perfectly healthy. When about the size of a pea, the membrane was generally more or less red, thickened and softened, or even destroyed, at the point of contact. The granulations themselves then began to decrease, and the loss of substance continued until their complete destruction, leaving the edges of

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* Laennec, (p. 288,) says, the mucous membrane near ulcers is generally pale. Andral (*Clin. Med.* vol. iii. p. 306,) has found it pale in about one-fifth of all his cases. (Translator.)

the ulceration indurated, white and opaque; retaining almost exactly the characters of the tumour to which they succeeded: thus pointing out the nature of their cause. The semi-cartilaginous granulations were sometimes seated among the agminated glands, but more frequently in their intervals. They were equally distributed over the circumference of the intestine. We have only remarked them immediately underneath the mucous membrane; they never occupied the interstices of the muscular fibres, which induces us to think that they are simply the morbid dovelopment of the muciparous glands, with which their situation completely coincides.

117. We have never found *tuberculous granulations* equally numerous. These were also situated either round the ulcerations, in their centre, or in the interstices of the muscular fibres; between these and the peritoneum;*—among the agminated glands or in their intervals; and were almost constantly more numerous near the cœcum than elsewhere.—(*Obs.* 6, 8, 12, 15, 21, 27, &c.) We have never found them near the duodenum. These granulations were succeeded by small ulcerations, produced by the same process as are tuberculous excavations of the lungs. The tuberculous matter gradually softened, and the mucous membrane was proportionably red, thickened, and softened in the corresponding point; if destroyed, the contents of the abscess were emptied on the intestinal surface, so that inflammation of the mucous membrane was here an effect and not a cause of tubercles.

118. We have never seen tuberculous matter occupying the intestinal mucous membrane under any other form than that of granulations.

119. Either separately or conjoined these two species of granulations existed thirty-six times out of the ninety-five cases already mentioned; and in six of these they were of a *semi-cartilaginous structure*, which is much less frequently observed.

120. *Ulcerations* were still more common, and on this account seemed very often unconnected with either kind of granulation. We have remarked them in different propor-

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* These differences, in the situation of the two kinds of granulations, prove that they occupy different tissues. (Author.)

tions in seventy-eight instances, making them more than twice as frequent as granulations, being present in nearly five-sixths of the cases.* This proportion is rather different from that of Bayle, who has met this alteration in only the 67-100ths. This difference, however, ought not to cause any doubt as to our own accuracy: we have probably employed more time in properly cleaning the small intestine, and in scrupulously examining it throughout its whole extent; in this way, the smallest ulcerations, which can only be detected when the mucous membrane is well washed, would not have been overlooked; and to this more than any other cause our difference may we think be attributed.

121. With some few exceptions, the number, dimensions, and depths of the ulcerations, increased as they approached the cœcum. Supposing the small intestine to be divided into three equal portions, in the majority of cases, ulcerations only existed in the lower third, or in this and the middle third. It was less common to find them occupying the whole of the intestine. This was, however, the case in rather more than one-sixth of the examples; in only three instances have we seen ulcerations confined to the middle third.

122. When small, they were almost exclusively situated opposite to the mesentery, in points corresponding to the agminated glands, which were themselves destroyed. In their maximum of development, they occupied the whole circumference of the intestine.

Their dimensions varied from a line to five or six inches in superficies. Occasionally the same individual presented several of the larger ulcerations (*Obs.* 4), while in others the smaller were alone present.

123. Their form, for the most part, pointed out their origin and was as variable as their dimensions. When small, they were rounded, as are those which result from the softening of the granulations. When rather larger, they presented the elliptical figure of the agminated glands, whose situation they occupied; and this appearance was the most usual. Next to

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* Andral, (*Clin. Med.* vol. iii. p. 175), out of all the phthisical patients entering the wards of M. Lerminier during five years, found the intestines sound in one-fifth only. (Translator.)

this, the circular form predominated.—(*Obs.* 31, 38, 43.) The *lineary* was the most unfrequent; we have, however, seen it in seven instances, and almost always in the upper half of the intestines; in these cases the ulceration was from an inch to an inch and a half in length, and a line and a half in breadth at its centre, gradually narrowing towards the extremities.

124. The colour of these ulcerations was as variable as their other properties. Usually whitish when small, they were often of a grey colour mingled with red, when their dimensions were more or less considerable. Sometimes also, and this peculiarity was almost confined to the lineary ulcerations, they were of a blackish or reddish brown colour.

125. Their structure varied according to their extent and duration. When small, and no doubt recent, the denuded sub-mucous cellular tissue was slightly thickened, smooth, and no evident alteration of the muscular layer was observable. When larger their aspect was less uniform;—some presented an unequal surface, formed by the more or less thickened sub-mucous layer and fragments of the mucous membrane. In others, no trace of the latter existed; but the cellular layer was alternately thin or thick, partially or even wholly destroyed, and the muscular coat exposed; the latter also became in its turn more or less thickened, rough, of greyish or whitish colour, and interspersed with tuberculous granulations. This increased thickness was often conjoined with partial thinning of the membrane. Its complete destruction was much less frequently observed; so that in proportion as any one of the tissues, entering into the formation of the intestinal parietes, was denuded, *it gradually thickened* and finally ulcerated.

126. The large ulcerations were frequently the result of the junction of smaller ones; a fact easily demonstrated when the latter were numerous and situated among the agminated glands. There might then be observed, softened tubercles, with small circular ulcerations separated by entire or partially destroyed bands. In others, no remnant of these divisions remained, the cellular membrane was completely denuded, more or less thickened, and presenting small round shaped depressions of variable depth, corresponding no doubt to the partial ulcerations just described. Lastly, in a third division of similarly formed ulcerations, the sub-mucous layer was either in part or

wholly destroyed, and the muscular coat denuded, uneven, and thickened.

The following case furnishes an example of most of the preceding alterations.

OBSERVATION IV.

A house painter, aged 62, entered the hospital of La Charité the 25th of July, 1824, and died in the month of August following. Parents healthy, himself of naturally thin spare habit, dated his illness and diarrhœa five months previously. The latter had been violent, causing at first twenty or a still greater number of stools in the twenty-four hours; these were frequently accompanied with violent colic; cough had been present from the middle of the fourth month. Since then the aphonia had been more or less complete, and he complained of a sense of dryness in the larynx. Diminution of appetite almost from the commencement; the anorexia had subsequently increased; and, after the fourth month, the cough occasionally excited vomiting. Thirst urgent from the third month. Had experienced no rigours or sense of heat with the exception of the eight days preceding his entrance into the hospital; emaciation from the first.

On the 25th of July—great debility; memory good; breathing slightly accelerated; cough moderately frequent; expectoration pretty abundant, opaque, greenish, not striated, and with ragged edges (déchiquetés). Percussion of chest good; tracheal respiration under the left clavicle; coarse and strong under the right, but without any bubbling. Apyrexia; skin cool; pulse calm. Tongue rather paler than otherwise, nearly natural; no appetite; thirst moderate; deglutition rather difficult; occasional sense of oppression in epigastrium; three liquid stools.

On the 31st, at the time of the visit, marked change in features, expression of uneasiness and suffering; tongue dry; abdomen hot, of natural form and volume. For the last hour had experienced acute pains in the region of the gall bladder, greatly increased by pressure. The stools had become frequent, and the pulse and breathing much accelerated.

The same symptoms continued during the day, and the patient expired at four the next morning.

Sectio Twenty Eight Hours after Death.

Exterior.—Extreme emaciation.

Head.—A good deal of infiltration beneath the upper portion of arachnoid: three spoonsful of clear serosity in each lateral ventricle. One in the lower occipital fossæ. The septum lucidum very thin and distended by fluid, communicating with the middle ventricle; in all about a drachm. Cerebral substance moderately injected.

Neck.—The inferior half of the laryngeal surface of the epiglottis was slightly injected, and with some superficial ulcerations. A very small one was found at the junction of the vocal cords. The mucous membrane of trachea was red without other alteration.

Chest.—The left lung, which was adherent to the costal and diaphragmatic pleuræ by an abundant cellular tissue, was congested at its base, and presented in its summit a middle-sized tuberculous excavation, nearly empty. Its parietes were not lined by false membrane, but principally composed of tubercles, granulations, and a grey substance approaching to black, which was abundantly scattered throughout the remainder of the upper lobe. The same alterations were found in the inferior lobe. There was no cavity in the right lung but a small number of tubercles or granulations with some adhesions. On the same side, the bronchi were of a pale pink colour; on the left, when they freely communicated with the excavation, they were of a dark red. The bronchial glands were not tuberculous; heart sound; aortic valves rather tense and thickened on their free edges.

Abdomen.—A little limpid puce coloured serosity in the lumbar regions; a large glass full of thick, yellow coloured inodorous pus between bladder and rectum. Nowhere any trace of false membrane. The mucous membrane of the stomach was very thin, almost transparent, and as soft as mucus in the upper portion of the great cul de sac, where the subjacent vessels were of a brown colour and much enlarged. Elsewhere it was greyish, more or less mamillated, of normal thickness and consistence. Nothing remarkable in the duodenum. The small intestine rather larger than natural, offering externally many grey bluish coloured spots, and containing a large quantity of turbid, reddish, and moderately thick fluid. Supposing it divided into five equal parts, the mucous membrane was healthy in the first and last. In the remainder, there were numerous ulcerations, almost all situated parallel to the direction of the valvulæ conniventes. The largest were in the centre of the intestine, interesting the whole of its circumference, and leaving the muscular coat exposed. Two among them presented a superficies of from four to six inches; they were greyish coloured, and rugged. The muscular coat in the same point was three quarters of a line thick, its fibres were more brittle and less flexible than natural. Above and below this portion of the gut, ulcerations existed, (not completely encircling the intestine,) whose edges were thick, but their centre very thin, by which the muscular coat seemed cut obliquely. The bottom of several consisted wholly of peritoneum, which was itself sometimes destroyed, and perforation had taken place. Round one of these perforations the serous membrane was of a livid red colour, exceedingly thin, and in all respect resembling those perforations which take place in acute diseases. Around another it was of natural colour, and less attenuated, as if rather the result of tearing, (though the greatest precautions were employed,) than from any other cause. The contents of the large intestine were similar to those of the small. The muscular coat was denuded in the whole circumference of the cœcum, and for about seven inches of the ascending colon. It was of greyish colour, with partial but inconsiderable loss of substance, and one line thick. Towards the middle of the transverse colon were other very extensive ulcerations, exactly similar to the one described, leaving the intervening mucous membrane healthy. It was pale, and slightly softened in the descending colon and rectum. The greater part of the mesenteric glands were much increased in volume, and transformed into tuberculous matter. Some among them presented, conjoined with this, variably sized masses of a white, opaque, shining, and resisting substance, in every respect cancerous. The other abdominal viscera were healthy.

127. Notwithstanding the very careful examination of the

intestinal tube, and although one of the perforations exactly coincided in its characters with what takes place in the best observed and described acute cases of this description, we cannot in the present instance suppose it to have existed during life. It is true that an acute pain was felt in the region of the gall bladder twenty-four hours before death ; the pulse became accelerated, the abdomen hot, and a certain quantity of pus was found in the peritoneal cavity ; in a word, there was peritonitis. But the pus was without odour, of natural colour, and had none of those properties which accompany perforation of the small intestine, (properties so marked in respect to odour and colour, that they are almost sufficient of themselves to indicate perforation) ; there was not the slightest trace of the turbid dirty coloured fluid of the small intestine in the peritoneal cavity ; so that this individual fact seems rather an example of one of those cases where peritonitis comes on in the last stage of phthisis (188), than where it results from perforated intestine. At all events, this observation is extremely interesting, from the number and extent of the ulcerations in either intestine ; from the thickened state of the corresponding muscular coat ; from its loss of substance, and complete destruction in other points, with exposure of the peritoneum and perforation, either actually arrived or on the verge of taking place.

Let us also take notice that there were no tuberculous granulations in the substance of the muscular coat. Were this more frequently the case, it is probable that its entire destruction and peritoneal perforation would be less rarely observed. But, as we have already remarked (125), muscular fibres, instead of following the destruction of the mucous and cellular membranes, become gradually thicker, only yielding after a greater or less space of time, and then in comparatively few instances.

128. The parts immediately surrounding the ulcerations were sometimes in their usual level, but in general were more or less raised. When the ulcerations were small and circular, the mucous and cellular tunics forming thin edges were very slightly thickened. If they resulted from the semi-cartilaginous granulations, the edges were proportionably thick to the progress the latter had made. When large and still recent, the sub-mucous layer not being destroyed, their circumference was rugged, and of variable thickness ; arising in many cases from

the presence of a certain number of softened tubercles. In general, the surrounding mucous membrane was more or less red and softened.

Besides the preceding alterations, there were occasionally minute abscesses, of the dimensions of a pea, formed in the sub-mucous cellular tissue. These were sometimes present when neither ulcerations or granulations existed in the small intestine. Their parietes were at times smooth, proving them rather the result of phlegmonous inflammation, than of softened tubercle. It is proper to observe, that we have scarcely ever found them except in phthisical patients: and in the two instances where they existed after other diseases, their contents were composed of a very tenacious, yellowish, and demi-transparent substance.

129. When the small intestine was healthy, or presented very few morbid changes, it contained a variable quantity of mucus, of different colour and consistence, and sometimes stained with blood. When, however, the ulcerations were large and numerous, instead of mucus, there was a turbid, dirty, red-coloured or greyish fluid of variable consistence, very similar to what we have described in the last observation; it had a strong odour, much resembling that of animal substances in maceration.—(*Obs.* 14.)

130. Many of the morbid alterations now described as the softening, thickening, redness of mucous membrane, and semi-cartilaginous granulations, are common to phthisis, and to a great number of other chronic and acute affections; but the semi-cartilaginous granulations are more frequent in phthisis than in any other circumstances. The tuberculous granulations and ulcerations appear peculiar to this disease. We have never remarked the former except in phthisis; and if it is not rigorously correct to say that ulcerations of the small intestine are exclusively found in this affection, exceptions are so rare, that the proposition is almost literally true. Out of eighty-five cases, consisting of various chronic affections, we have only met six where the small intestine was ulcerated. Three among these were in individuals whose lungs offered either tubercles or tuberculous excavations. Among the three others, one was that of a woman whose principal affection was gastritis; the other two were cases of dysentery. In the three instances the

ulcerations were small and few in number; so that, if every variety of ulceration of small intestine is not absolutely peculiar to phthisis, we may consider the assertion correct for those of a certain extent; for we are here only referring to chronic diseases, and not including typhus fever.*

ARTICLE V.—*Large Intestine.*

131. With the exception of the semi-cartilaginous granulations, this portion of the intestinal canal presented lesions similar to those we have just described. We shall therefore only insist on their peculiarities.

132. The whole of the mucous membrane was red, in twenty-seven out of the ninety-five cases we are considering; that is, in rather more than one-fourth. In twelve of these the redness was interrupted; in fifteen it was continuous throughout; and, when this was the case, it was generally very intense. With three exceptions, it coincided with marked softening of the mucous membrane, which was reduced to the consistence of mucus, and could only be removed in this form. It was often thickened, and more frequently ulcerated.

133. The *thickening* was present when the natural white colour of the membrane was retained; but was then combined with softening, and a certain number of ulcerations.

In comparing this and the preceding paragraph, we perceive that the thickening of the mucous membrane of the large intestine was always united to some other alteration, and most usually to that of softening.

134. *Softening* was then very frequently present. It was observed, not only in those cases where the mucous membrane

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* These results are of a highly interesting nature, and not without marked advantages, both for diagnosis and treatment. In cases of chronic affections of small intestine, our great object would be to decide on the *presence* or *absence* of phthisis. In the latter case, the presumption of ulcerations *not* existing would certainly be justifiable, and greatly increase the probability of efficacious treatment. During *the eight years* which have elapsed since the publication of this work, M. Louis has not examined *a single subject* who died from a chronic disease and presented ulcerations in the small intestine, in which he did not find *tubercles in the lungs.* Vide *Examen. de l'Examen.* p. 18. (Translator.)

was red and thickened, but even where it had preserved its natural colour and thickness. We have found it sixty-two times either occupying the totality, or a considerable part of the intestine.

In numerous instances the red and softened mucous membrane was more or less extensively mamillated (*Obs.* 17); it was sometimes completely destroyed in innumerable minute portions, producing an undulated aspect. In two instances it was destroyed over a surface of ten inches; and, in consequence of the slightly pink tinge of the sub-mucous tissue corresponding to this enormous loss of substance, it would, without great attention on our part, have escaped notice. Beyond the limits of this destruction, the cellular tissue was not sensibly modified, and the membrane may, perhaps, have been removed, simply by the friction occasioned by the fæcal matter. This is rendered more probable, from the fact that, in extreme states of softening of the mucous membrane of the colon, passing the back of a scalpel over it is sufficient to destroy it entirely.

135. The cellular tissue was usually opaque; its thickness two, three, or four times greater than natural.—(*Obs.* 17.) In others, as we have mentioned (134), it was of a light rose colour, while in the majority it retained its usual whiteness.

This last fact appears very remarkable; for, as will hereafter be shown, the softening of the mucous membrane was, in a great number of instances, an evident result of inflammation, which only dated a few days previous to the death of the patient. The thickening of the sub-mucous cellular tissue was probably consecutive; it had certainly the same origin, and yet it is difficult to imagine a membrane thickened by recent and acute inflammation, retaining its natural paleness. This fact, with many others, shews that the thickness of our tissues is one of the most important circumstances to notice, and that, to confine ourselves to the description of the colour of membranes, is often useless, and even a cause of error, to those who might draw conclusions from such imperfectly described facts.

136. It may be asked, is the cause of this softening constantly identical? When united to redness and thickening, it can scarcely be doubted that it has an inflammatory origin. This is also probably the case when thickening exists alone, for the discolouration of inflamed structure takes place sooner or

later, as is exemplified in the various gradations of hepatized lung.

But when softening is present, without any change of colour or consistence, is it then the effect of inflammation? This also is far from impossible; but at the same time that it is so, is not incontestable; for many organs are frequently softened, when we cannot suppose inflammation to have been present. Thus, in typhus fever, and in many other chronic diseases, the heart is often softened, and its colour increased, without any assignable cause. The spleen presents, in numerous instances, a state of extreme softening, which we have no right to attribute to inflammation. On the other hand, it ought to be noticed, that continuous with a red and softened portion of mucous membrane, we often find another equally softened, but without redness. If the first, therefore, is inflammatory, it is probable that the other is so also; but it is a mere probability, and fresh facts are necessary to decide the question.

But at what degree of softening does disorganization take place? We are not acquainted with any fact which can solve this problem. It appears, however, infinitely probable, that very considerable softening may exist, without the affected tissues becoming disorganized;—the condition of the spleen in typhus fever is favourable to this opinion. In fact, in a certain number of individuals who have died after a very protracted form of this disease, we have found the spleen voluminous and firm; and since its softening is an almost constant phenomenon in typhus, and that to an extreme degree, we must admit that this had taken place in some of the cases referred to, and consequently, that the spleen had regained its consistence, and had not been disorganized.

138. When describing the symptoms farther on (264), we shall find, as we have already pointed out (133), that the inflammation producing the pulpy softening of the mucous membrane of the large intestine is developed only a few days before death, as in the case of the pulmonary parenchyma, the pleura, and the mucous membrane of the stomach.

139. There were thirteen examples of *tuberculous granulations*; (or in about one-eighth of the cases). These were situated either in the centre or circumference of the ulcerations, and not in their intervals.

We have never observed the *semi-cartilaginous granulations.*

140. *Ulcerations* were frequent. They were present in seventy cases, which makes them nearly as common as in the small intestine; and since softening often existed without ulceration, we have necessarily very rarely found the mucous membrane healthy in its whole extent. It was so only three times.

141. Usually the ulcerations were small—from three to six lines, or less, in diameter. The largest, (and we have already seen how considerable their dimensions were occasionally), were only about one-fourth as numerous. The smaller, in ten cases, were almost uniformly distributed throughout the whole of the intestine. When more considerable, (one to two inches, or rather more in surface), this was the case in only one instance. In other examples, the number of the ulcerations diminished from the cœcum to the ascending colon, and from the transverse to the rectum, in the ratio of 17; 11; 8; 4. If we would now know the aggregate of cases in which ulcerations were present in each division of the intestine, (including the small ulcerations), the respective figures for the cœcum, ascending, transverse, descending colon and rectum, will be 34; 37; 25; 8; 32;—that is, in an equal proportion of cases they are nearly equally common in the cœcum and rectum. But here the analogy ceases; for the difference, as to the size and number of the ulcerations, was very great.

When small, they were usually rounded, with flattened edges, as if artificially produced. Their bottom was greyish, approaching to black; sometimes but rarely of a pink colour; this last tint would have often led us to overlook them, were we not in the habit of scrupulously washing the intestine. They were lined by the cellular tissue, either thickened or much thinned, and in three instances only, by the healthy muscular coat; which latter disposition we have not yet observed in similarly sized ulcerations in the small intestine.

Instead of a rounded form, both the small and middle-sized ulcerations were sometimes much elongated, being from one to two inches in length, by two or three lines wide; or even less. In direction, they were either transverse, longitudinal or oblique. These varieties of form were sometimes all combined in a small space. When the ulcerations were numerous, and the intervening mucous membrane more or less thickened, the general aspect very much resembled the chapped integuments of the hand.

142. The form of the large ulcerations was irregular, indentated or radiated; often attacking the whole circumference of the cœcum, ascending, transverse colon, and rectum.

They not only very frequently extended round the cœcum and ascending colon, but occupied longitudinally a space of from eight to nine inches or more.—(*Obs.* 4, 12.) Now and then, in the midst of these immense ulcerations, there were zones of intestine perfectly healthy, except a slight and partial softening of the mucous membrane; here and there were seen small insulated portions, formed by the more or less thickened fragments of the mucous membrane and sub-cellular tissue. The three other divisions of intestine, have in no instance, presented ulcerations of equal dimensions. The largest we have ever observed in the rectum, were from an inch and a half to two inches in length, encircling the gut, and situated immediately above the anus.

Both the large and middle-sized ulcerations were of a greyish colour. They were sometimes lined by the more or less thickened, indurated, and easily torn sub-cellular membrane. This was much softened only twice; most frequently it was destroyed, and the muscular membrane exposed. This destruction was almost invariably universal in the large ulcerations. The muscular layer under these circumstances was always thickened, and of a variably deep grey colour; its fibres were more or less brittle and indurated, forming prominent fasciculi, with sometimes tuberculous granulations in their interstices, and presenting, in some points, a commencement of disorganization.

Examples occurred, where the mucous membrane and its accompanying layer were detached to a greater or less extent around the ulcerations, or they formed intersections across the surface of the latter.

143. When the ulcerations were very large and numerous, and the muscular coat extensively denuded, there was frequently an odour similar to that from animal substances some time in maceration. The fæces were reddish, turbid, and liquid, often resembling putty in colour. A few days previous to death,

the stools have presented a similar odour and colour. Were the ulcerations few in number, of moderate size, and limited to the cœcum and commencement of colon, the fæces were soft, dirty coloured, and sometimes smeared with blood; while in the rectum they were very dark, or of a bright yellow colour. We must therefore conclude, that with some rare exceptions, it is impossible to appreciate the state of the mucous membrane of the large intestine, by means of the fæcal discharges.*

144. Intestinal ulcerations were often, at least in their origin, independent of inflammation. This was evidently the case with a great number of those in the small intestine, the result of softened tubercles; for the development of the latter could not be attributed to inflammation, since so long as they remain unsoftened, the mucous membrane covering them, continued healthy. Far from being the cause, the inflammation of the mucous membrane was, as we have already seen, subsequent to the presence of the granulations. The same remark is equally applicable to some cases of ulceration of the large intestine.

Where softened tubercle could not be considered the cause, it would still be difficult to regard ulceration as simply the effect of inflammation, which does not usually take place in isolated patches on a mucous surface. Of this fact we have we think afforded an example, when speaking of the softening with redness and thickening of the mucous membrane of the colon, which almost invariably extends to its whole surface. As to the small intestine, we will remark, that while distinct traces of inflammation are much less common than in the colon, its ulcerations are still more frequent; and that where inflammation appeared to be the cause, it had still a peculiar character, being most generally bounded to the portion of mucous membrane occupied by the agminated glands.

These reflections are strengthened by what we have said respecting the extreme rareness of the ulcerations of the small intestine in all chronic diseases except phthisis; while simple inflammation of the mucous membrane is quite as frequently observed in one case as the other.†

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* Dr. Abercrombie, in his valuable work on *Abdominal Diseases,* arrives at nearly similar conclusions. (Translator.)

† These remarks are peculiar to our author, and as they have been, and no doubt will be, contested, we direct the readers attention to the evidence in their favour, and the mode of reasoning adopted. (Translator.)

145. With the exception of the tuberculous granulations, we have met, though in different proportions, all the other alterations just described, in cases fatal from a variety of chronic diseases. Thus out of ninety-two individuals, thirteen offered a greater or less number of ulcerations, confined to one or more portions of the large intestine. But six among these had tubercles in the lungs, and were consequently phthisical; reducing the number of cases with ulcerations to seven out of eighty-six. Of these seven, four were examples of dysentery, and in all the ulcerations were of small extent, and slightly varying in character from those we have just described. The softening, with or without redness or thickening of the mucous membrane, was observed in one-third of the cases, that is, much less frequently than in phthisis.

CHAPTER IV.

OF THE LYMPHATIC GLANDS.

146. These were frequently tuberculous, sometimes more or less red and increased in volume, with very rarely any other kind of alteration. The relative frequency of their tuberculisation was as follows: the mesenteric, meso-cœcal, meso-colic, cervical, lumbar and axillary glands. We do not enumerate the bronchial glands, for although we examined them with equal care, we have most frequently omitted to note the results. We think, however, we may venture to affirm, on the strength of later observations, that they are not oftener tuberculous than those of the mesentery.

ARTICLE I.—*Of the Mesenteric Glands.*

147. Out of 102 cases, where they were carefully examined, they were tuberculated in 23. Thus modified, their volume was increased. In the majority of instances the transformation was not general, it was only partial. (*Obs.* 9, 15, 16, 31.) In others, only minute points, either in the centre or circumference of the gland, could be detected. These points were

interspersed through a structure usually red, and less consistent than natural; in general the altered glands were aggregated in distinct groups.

All the mesenteric glands were not equally affected. Those nearest the cœcum were most frequently modified; and in the twenty-three cases we are now examining, we have only once seen the affection universal.—(*Obs.* 23.) The transformation of each individual gland was here complete; no trace of its primitive structure remaining.

There was evidently not only production of a new tissue, but transformation of one structure into another; unless we would rather admit that the glandular tissue was removed by absorption.*

148. We have only once found, in the centre of an incompletely tuberculated mesenteric gland, a small portion of the grey semi-transparent substance. In all other cases, the granulation was yellowish, opaque, and really tuberculous from the first moment it could be observed. This mode of development of the tuberculous matter, differs from what Laennec considers to be the case in the lungs.

149. The mesenteric glands, when tuberculated, presented no other alteration. We have only once remarked, conjoined with tubercles, a shining, firm, granulous substance, very analogous to encephaloid matter.—(*Obs.* 4.)†

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* The transformation of healthy into morbid structure cannot we think be satisfactorily demonstrated by a single example. In physiology the gradual formation of our tissues follows certain laws, and has certain limits—but morbid deposit seems always something *more*—something added, and not merely a modification of what previously existed. If we might cite our own observations, we would say that, nowhere is this more evident than in the lymphatic glands, which often combine the great advantage of presenting an identical alteration in all its various stages; and from a careful inspection of cases where this facility was afforded, the tuberculous matter seemed always a simple *deposit*, and by its gradual increase, to have caused the ultimate absorption of the glandular structure. (Note of Translator.)

† The *co-existence* of different morbid alterations is a subject of considerable pathological importance. Pathologists are well aware that tumours, wherever situated in the body, are almost invariably of the same description, and knowing the nature of one, they do not hesitate to predict that of the others. There is a remarkable case cited by Andral (*Anat. Path.* vol. i. p. 420), showing the great analogy of cancerous and

150. The mesenteric tubercles were very rarely softened; a result no doubt depending on their being recent. This is at least probable, for in the majority of cases, the development of tuberculous matter in the mesenteric glands, seems gradual, and is almost always partial; it is consequently recent at the period of the individual's death, and the softening only takes place when the transformation is complete.

151. But what is the *cause* of this alteration? We have remarked (147) that the mesenteric glands when tuberculous were increased in volume: when they only presented some tuberculous granulations, they were more or less red and slightly softened. But this slight excess of volume was not always accompanied with this change of colour and consistence; so that in some instances inflammation appears to have produced the development of tuberculous matter, while in others, no such influence can be traced.

Whatever may be the immediate cause of these tubercles, let us now inquire whether they invariably depend on an inflammatory state of the corresponding mucous membrane? In every instance, when the mesenteric glands were tuberculous, we have found ulcerations of the small intestine, and these ulcerations had not taken place without primary or secondary inflammation of the mucous membrane; they were also themselves a perpetual source of irritation. When the mesentery was only partially tuberculated, it was so in the cœcal portion, or the part which corresponds to the most usual seat of large ulcerations. These facts seem to point out a close connexion between tubercles in the mesentery, the mucous membrane, and ulcerations of the small intestine; but in more than one-half of the cases, the ulcerations were small, and when extensive, and consequently chronic, no increase of tuberculous matter was observed. The only example of complete tuberculous trans-

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tuberculous matter. Trousseau (*Arch-Gen. de Med.*, 1828), has found, though very rarely, these two morbid productions together, as well as cancer and melanosis. We have already seen that extreme emaciation characterises both the cancerous and tubercular diathesis, and this unity of effect under such different circumstances, with respect to the pulmonary organs, induces us to suppose that loss of flesh in phthisis may not be a consequence of the condition of the lungs. (Translator.)

formation of *all* the mesenteric glands, was that of a young man, whose affection was still recent, who had experienced but very slight diarrhœa, and in whom we found the mucous membrane of small intestine perfectly healthy, both as regards colour, consistence, and thickness.—(*Obs.* 23.) The only alteration appreciable, and doubtless it is not a very important one with regard to the object we have in view, was a round ulceration of a line in diameter, with pale flat edges, situated near the cœcum. We must therefore conclude, that if the inflammation of the lymphatic glands, that of the mucous membrane, and the ulcerations of small intestine, ought to be viewed as the occasional cause of mesenteric tubercles, there are other cases where no such dependence exists. It may perhaps be said in reply to this, that tuberculous affections are essentially chronic, and probably, that of the mesentery existed anteriorly to the origin of the principal disease; and that during this interval the inflammation of the mucous membrane might have disappeared. But this is only opposing an hypothesis to a fact, and taking for granted as an invariable law, what really is not so; for, tuberculous matter is capable of very rapid development, as we shall hereafter prove, when speaking of the progress of phthisis. We may remark in anticipation, that we have *never* met mesenteric tubercles *except in phthisical cases;* we cannot therefore suppose them to have *preceded* the principal affection; particularly as no well marked indications of irritation of the mucous membrane of small intestine were at any time observed.*

152. The *duration* of phthisis had no influence on the development of the modification we are now considering. It was equally frequent in cases where the disease was recent, (from six weeks to five months,) as when it was protracted from one to ten years.

153. When the glands were not tuberculous, they were very often greatly increased in volume, and of a variably intense red

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* The mode of reasoning to which our author resorts is rather novel in medicine, and indeed till very lately would have been impossible. The reader will observe how it wholly rests on numerical facts, and to what satisfactory conclusions it would often lead, and what useless conjectures be avoided, were accurately analysed facts at our disposal. (Translator.)

colour. This may lead us to conclude, that when the tuberculous matter was coincident with inflammation, it had been preceded by the latter.

154. We have not detected any symptom which could be attributed to the alteration before us. In the instance already cited, where the whole of the glands were tuberculated, the patient never complained of pain around the umbilicus. Pressure properly applied discovered no tumour. However, *if* in cases of phthisis, we detected a tumour in the region of the mesentery, it might we think be regarded as tuberculous, for in no example of this description has any other been observed.

Article II.—*Of the Meso-cœcal, Meso-colic, and Lumbar Glands.*

155. The meso-cœcal glands were rather less frequently tuberculated than those of the mesentery, but more so than those of the right lumbar meso-colon. They were enlarged like the mesenteric glands; were seldom entirely transformed into tuberculous matter, and were more or less red in points where this transformation did not extend.

Five times out of sixty the lumbar glands have been tuberculated. In three their transformation was complete; they were about the size of a walnut, indurated, and nowhere softened. In one of these cases the mucous membrane of small intestine and colon was perfectly healthy, and the state of the glands could not be explained by any lesion of the abdominal viscera. The patient was a female of seventy years old.

In not one of the cases now under consideration, have we seen the grey semi-transparent matter combined with the tuberculous, the development of the latter therefore follows the same course as in the mesenteric glands. We have only once found the lumbar meso-colic glands tuberculated.

Article III.—*Of the Cervical, Axillary, and Bronchial Glands.*

156. The cervical glands were more or less tuberculous in one-tenth of our cases, eight times out of eighty; and, like the

mesenteric glands, larger than natural, and of a variably intense red colour whenever they were not degenerated.—(*Obs.* 9, 18, 35, 47.) In four of these cases, the mucous membrane of the trachea was of a more or less florid red colour. In one instance it even presented some small ulcerations. In the others, it was *healthy;* so that, in not one of the examples presenting those vast ulcerations we have described (*Obs.* 15, 43), were the cervical glands tuberculated; and here, as in the case of mesenteric tubercles, tuberculous transformation must be viewed as depending on some other cause than the inflammation of the corresponding mucous membrane.

In a single instance (*Obs.* 9), the cervical glands, converted into tuberculous matter, were the cause of pain, and this patient also furnished the only example we possess of tubercles in the axillary glands, where pain was also complained of.

157. When the bronchial glands were tuberculous, they were usually of increased volume, and of greyish or black colour. They were very rarely tinged with red.

158. The morbid change we are examining, seems special to phthisis. In ninety-eight cases, fatal from a variety of chronic diseases, as dysentery, &c. &c., we have not met *a single instance of tuberculated lymphatic glands.* A considerable number, however, among them, were examples of inflammation and sometimes ulceration, &c. of the intestinal mucous membrane; an additional motive to believe that the inflammation of mucous membranes is not either the only cause, or even the most important element of tuberculous transformation.*

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* M. Broussais says, he has *often* found them, independently of any tuberculous affection of the lungs, both in *adults* and infants. Vide *Exam. Med.* vol. i. p. 344. To judge of the value of this *assertion*, we refer the reader to what our author has stated in page 19, of his repl[illegible] M. B.'s criticisms. M. L. fully confirms the accuracy of the opinion, that after the age of fifteen, tuberculated glands never exist without tubercles in the *lungs*, by the additional experience of *eight years.* (Translator.)

CHAPTER V.

BILIARY APPARATUS.

Article I.—*Of the Liver.*

159. The *fatty* transformation of the liver was the most frequent, and at the same time, most remarkable alteration of this organ. It existed in one-third of the cases (40 out of 120). In this condition it was pale, almost always of a light brownish yellow colour, spotted with red, externally and internally. It retained its natural form; but its volume was nearly always augmented, and at times double its usual dimensions. This increase was almost invariably at the expense of the right lobe. The liver then overlapped a large portion of the anterior surface of the stomach, occupied the epigastrium, extended the breadth of two or three fingers below the false ribs, and reached the iliac crest and the spleen, which was also occasionally covered. We once saw it situated in the centre of the abdomen, and about two inches from the pubis.

160. Its consistence (with the exception of cases where the alteration was but slightly pronounced) was greatly diminished; it easily yielded to traction, and was sometimes much softened. In very advanced cases, the scalpel and hands were greased as by ordinary fat substances.

When the morbid change was less evident, we ascertained its existence by placing a thin section of the liver on a sheet of paper, and exposing it to the flame of a candle: a very slight heat melted a small quantity of the fat, saturated the paper, and thus demonstrated its presence.

The lesion constantly occupied the *whole surface* of the liver.*

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* The fact of any particular morbid alteration, invariably occupying the *totality* of the organ affected, is interesting; and, combined with the *general* characters of inflammation when attacking parenchymatous organs, viz. that of being usually bounded to one side of the body, if the organ is *double, and almost invariably* (perhaps always) to a greater or less portion of organs, which are single, we may I think justly entertain a doubt as to its *inflammatory* origin. This observation is appli-

161. The causes of the fatty transformation of the liver, appear to us equally obscure as those of other chronic diseases. Without attempting any explanation, we will point out the principal circumstances with which it is accompanied.

One of the most obvious is, that this lesion is *almost confined to cases of phthisis*;* so that it may, to a certain point, be considered as depending on this affection. Out of 230 cases, nearly equally divided between acute and chronic diseases, we have only met nine examples of fatty liver; and among these nine, seven relate to patients who presented a certain number of pulmonary tubercles. By adding these nine cases to the forty already mentioned, we have forty-nine examples of this condition of the liver (and these include all we have collected during three years), out of which forty-seven were cases of phthisis. There are assuredly few phenomena of whose mutual dependence there is no doubt, and in confirmation of which facts are more unanimous.

Sex is another cause which favours the fatty degeneration of the liver; for, out of the forty-nine cases above-mentioned, ten only relate to men,—leaving the proportion between them and female patients, nearly as one to four. It is true that phthisis was rather more frequent among the latter, in the ratio of sixty-six to fifty-seven; but this difference cannot sensibly affect our calculation, or the accuracy of our assertion.

The strength or weakness of the constitution exercised no influence in producing the alteration in question. Age was equally without effect. Among the forty phthisical cases referred to, eighteen were from twenty to thirty; thirteen from thirty to forty; five from forty to fifty; three from fifty to sixty; and one from sixty to seventy; a proportion almost coinciding with the frequency of phthisis in the different periods of life.

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cable to that state of the kidney, so accurately described by Dr. Bright. Other reasons we think might also be adduced in favour of the idea that it does not arise from inflammation. (Translator.)

* Compare this with the 150th proposition of M. Broussais:—"Chronic gastro enteritis is the *cause* of hepatic engorgements, and of those yellow fatty enlargements of liver, which we *sometimes find in the bodies of those who die even of phthisis!*"—Andral has arrived at the same results as M. Louis. (Translator.)

We are also unable to enumerate among the number of causes, the diseases of the *duodenum;* since, in the first place, these were rare, and equally frequent in cases where the liver presented the fatty transformation, as in those where it was perfectly healthy.—(102.)

162. This morbid alteration may take place very rapidly. We have seen it in instances where phthisis had passed through all its stages in fifty days.—(*Obs.* 36.)

The variations in the duration of the disease have not sensibly modified the proportion. The results were similar in cases when phthisis had lasted only some months, or when it was protracted during several years.

163. If, however, we admit that this peculiar condition of the liver may be acute or chronic, our conclusion can only be founded on the dependence existing between this lesion and phthisis itself; for we have no means of diagnosis in our power at any period of its duration. We have in vain attempted to assign to it any class of symptoms; none such presented themselves. There was no pain complained of in the right hypochondrium; pressure on the liver, when extending below the edges of the false ribs, was equally without effect; and if it caused pain in the epigastrium, when occupied by the liver, this might be attributed to the state of the gastric mucous membrane. We have only once seen the colour of the skin affected; this was in the case of a female patient, aged 30 (*Obs.* 30), in whom phthisis was both obscure and slow in its progress. She had lived in England some years, and about the middle period of the disease, had experienced some shooting pricking pains in right hypochondrium, and other symptoms which induced a suspicion of disease of the liver. She was treated with purgatives and calomel. The colour of the skin became gradually changed, and when we saw the patient, it presented a very pale yellow tint, except on the face, where it inclined more to a brown and was less equally distributed. The sclerotic retained its naturally white colour; and this fact, as we shall hereafter see, ought necessarily to throw a doubt over the presumed cause of the colour of the skin. *

In this absence of all characteristic symptoms, there is only one circumstance which might lead us to suspect the pathological condition of the liver; viz. its increased volume, which in phthisis, is almost exclusively depending on the morbid alteration we are describing.

164. In every case where the adipous degeneration existed, the liver presented no other organic lesions. The latter, indeed, were at all times very rare. Thus we have only twice remarked tuberculous matter.—(*Obs.* 9.) In two individuals, from 18 to 19 years old, this organ offered internally numerous small cysts, from one to three lines in diameter, of slight consistence, barely allowing them to be separated from the surrounding tissue. Their parietes were about 100th part of an inch in thickness, and enclosing a greenish pulpy substance, We have only encountered these cysts in cases of phthisis.

In another instance (a woman aged 29), the middle lobe was destroyed and replaced by an irregularly rounded fibrous cyst, nearly double in volume the lobe to which it corresponded, and from 100th of an inch, or often less, in thickness. This cyst, of a yellowish white, contained a colourless rather turbid fluid, of moderate density, in which floated about 100 minute rounded bodies, varying from the size of hemp-seed to that of a small cherry. They were formed by a thin membrane, enclosing a limpid fluid. The parietes of the cyst itself were composed of a white opaque membrane, of the consistence of coagulated albumen, from half a line to three quarters of a line thick, very slightly adherent, smooth and polished like a serous membrane on its outer surface, and of a dull appearance internally. Here also there were five elongated elevations, from an inch to an inch and a half of surface, and from one to two lines thick, rough, nodulated, and presenting the aspect of the concrete albumen on the surface of a poached egg. The parenchyma surrounding the cyst was healthy.

The consistence of the liver was very variable. Sometimes soft, at other times firmer than natural, often combining induration with brittleness, but in no instance giving rise to any characteristic symptoms. One of the patients, whose history we have given (*Obs.* 7), presented a solitary example of an *emphysematous liver;* it was lighter than the lungs, and rather less than its natural volume.

ARTICLE II.—*Of the Bile and Gall Bladder.*

165. In one-third of the cases where the liver was adipous, the bile was very dark coloured, of viscid treacle-like consistence, in a medium state, as it were between a solid and fluid. In another third, it was still very thick, but less so than what we have just described. In the last division, its colour and consistence were natural; and in general it was less abundant when this was the case.*

However, the thickened state of the bile, in which it assumes very much the appearance of treacle, is not confined to this particular modification of the liver. We find it in other conditions of this organ, though proportionably it is much less frequent. Thus, in three phthisical patients, where the liver was healthy, the bile presented this peculiar appearance. We have observed the same fact in patients dead from other chronic diseases, and whose liver was healthy. In five out of seventy, the bile had a semi-solid consistence similar to that of treacle.

166. No relation could be traced between the state of the bile and that of the stomach. Its consistence was very considerable under the most varied conditions of the latter; when the mucous membrane of the stomach was softened, thinned, inflamed, or perfectly healthy; when patients had preserved their appetite to the last, or when anorexia was complete; both when vomiting had been frequent, and when it was altogether absent. In no instance have we detected any appreciable change in the bile of the ductus choledicus.

167. The parietes of the gall bladder were seldom morbidly affected. Twice we have seen them more or less thickened from infiltration, and twice from another cause. In one of these last (*Obs.* 49), adhesions were formed between the fundus of the gall bladder and the abdominal parietes; and in the corresponding point its mucous membrane was destroyed to the

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* The healthy state of the secretion, in a large proportion of the cases, and its similarity with that observed in other instances where the hepatic parenchyma appeared sound while the secretion itself varied, are additional arguments in support of the opinion we have advanced in a previous note, that the peculiar modification in question is not depending on inflammation. (Translator.)

extent of about an inch.—(*Obs.* 50.) Similar, though less considerable loss of substance, existed near the neck. Elsewhere, the membrane was about a quarter of a line thick, and presented in miniature the columnated appearance sometimes seen in the urinary bladder. The sub-mucous cellular tissue was thickened, and the portions corresponding to the ulcerations easily torn. The biliary vesicle contained about 200 calculi, varying in volume from that of a pea to a hemp-seed. Two years before her death, the patient had experienced acute pains in the corresponding region of abdomen, and during seven months had had several attacks of jaundice. In three women, of the respective ages of 30, 34, and 60, a considerable number of calculi were found immersed in a large quantity of bile, without any alteration of the parietes of the gall bladder. No symptom indicated their presence, and death took place at different periods of the year: spring, summer, and autumn.

168. In fatal cases from various chronic affections, principally of the liver, (perhaps chronic hepatitis) we have also found biliary calculi, with thickening and ulceration of the coats of the gall bladder. These alterations were even more frequent than in phthisis. They did not constantly accompany the presence of calculi, but we have *never* observed them when the latter were not present. Calculi were also *generally* present when the mucous membrane was simply thickened.

CHAPTER VI.

OF THE SPLEEN.

169. If our ignorance of the functions of the spleen renders the study of its morbid changes less interesting than those of other organs, their number and frequency are at least calculated to excite the zeal of observers; and, on this account, we cannot but enumerate the results of our examination. The alterations observed, in general referred to its consistence and volume, or the development of accidental tissues.

170. The latter were two in number: one, the tuberculous, which existed in 1-14th of the cases; viz. seven times out of

ninety instances, which were all carefully examined.—(*Obs.* 6, 7, 9.) The tubercles were very numerous, varying in volume between a hemp-seed and that of a filbert. They were, with one exception, more or less round, yellowish, opaque, of dull appearance; in all respects similar to those in the lungs. They were not *encysted*, and the immediately surrounding tissue was healthy. In two patients, where they were very numerous, various other parts of the body were affected, as the mesentery, neck, axilla, and even the brain.—(*Obs.* 9.)* We have never observed the grey semi-transparent matter conjointly with tubercles; so that here again they appear to have this form from the commencement. In the seventh observation the tuberculous matter had not its usually rounded appearance, and in other respects presented slight variations. The individual was a man aged 57, whose disease had lasted five months, and in whom the spleen presented rather an increased volume; it was partially adhering to the diaphragm, and covered by a false semi-cartilaginous membrane, about half a line thick. Beneath it, on the outer surface of the spleen, was a dull yellow coloured tissue, not evidently organized, firm and resisting; very similar to chamois leather; it had a lenticular conformation, being thin at the edges, and about one inch thick in the centre.

171. The other description of morbid structure we have only met once; it consisted of rounded, yellowish, shining, elastic, moist granulations, very different from tubercle, and irregularly interspersed through the parenchyma of a softened and enlarged spleen.

172. The *volume* of this organ was very variable; much smaller than natural in fifteen individuals, while it was twice, three, four, or more times its usual size in sixteen others. We have endeavoured to discover whether there was any relation

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* The result of our own observations, from a residence of eight months in the Hospital des Enfans Malades, at Paris, would lead us to suspect that the proportional frequency of tubercles in the different organs, varied much in the infant and adult. The brain especially presented them much more frequently; and when this was the case, with very few exceptions we found tubercles in the spleen. Exact knowledge of the changes in the seat and characters of disease in different periods of life, is an interesting and important subject for future researches. (Translator.)

between this increased volume, and intermittent or continued fevers experienced by the patient at a period more or less anterior to death; but without success. In the majority of individuals who had had intermittent or severe continued fever, this organ was very small: we have only twice found it voluminous after the former, and once after the latter.

173. Its *consistence* was equally variable. In ten cases it was much softened; and in all, with one exception, the *whole* of the parenchyma was equally affected. Increased density was most frequently connected with increased volume. This was also sometimes combined with great friability. In eight out of ninety cases, the softening was equally if not more considerable, than in typhus fever.

174. To determine whether any peculiar influence could be ascribed to phthisis, in the production of these various changes, they have been compared with analogous states in cases fatal from various acute and chronic diseases. In the latter, the increase of volume was in the same proportion as in phthisis, while its diminution was at once more considerable and more frequent. Out of 160 cases, where we are not including examples of typhus, in fifty the spleen was small. Among these, the decrease was very considerable in twenty-one instances, fatal from pneumonia, or some affection of the heart; a result seemingly pointing out that the dimensions of the spleen are independent of embarrassed circulation. Softening was more marked after acute than chronic diseases; very nearly coinciding with the proportions observed in phthisis. In none of these examples have we seen the spleen tuberculated.

CHAPTER VII.

URINARY ORGANS.

175. They very seldom offered any remarkable changes. We have frequently attentively examined the renal capsules, and the only alteration observed was, in two instances, a small quantity of unsoftened tuberculous matter. We have never seen the latter in these organs, except in cases of phthisis.

176. The kidnies, in three-fourths of the examples, were

perfectly sound, both as to their consistence, colour, and volume. Sixteen times only, out of ninety, we have found them rather redder than natural. Three times, their consistence was considerably increased. In four cases, small cysts were developed.—(*Obs.* 19.) In three, they presented a certain quantity of tuberculous matter, and in one of these the alteration extended into the ureter. The great rarity of similar facts, induces us to give the history of the instance to which we have alluded.

OBSERVATION V.

A barber, aged 24, of scrofulous and delicate habit, born of healthy parents, at the age of 12 years sprained the right foot. After the persistence of acute pains during two years, they ceased, recurring at distant intervals. Some fistulæ, formed round the tibio-tarsal articulation, discharged during four years, almost unceasingly, a certain quantity of pus. He had continued his business, and often walked considerable distances without inconvenience. Had coughed and expectorated a year and seven months, and was admitted into the hospital of La Charité, the 16th February, 1822. At the commencement of the cough, some very acute pains in right side of chest compelled the application of a large number of leeches. There had been no hæmoptysis, and the dyspnœa had existed very little more than six months. For more than a year the appetite had sensibly diminished, and during the last four months had altogether ceased; thirst was urgent, and diarrhœa frequent. The patient did not recollect having had perspirations; has complained of rigors the last fifteen days.

On the 17th February,—extreme emaciation; no headache, or pains in the limbs or loins; intellectual faculties clear; speaking hurried; voice without huskiness; breathing rapid; cough rather frequent, and occasionally in paroxysms; expectoration scanty, greenish coloured, and opaque; percussion everywhere clear; resonance of voice and pectoriloquy between the scapulæ, and under right axilla. Skin dry; temperature increased towards the evening; no perspiration or rigors the preceding night; pulse moderately frequent. Tongue clean and natural on edges; thirst urgent; very little appetite; epigastrium indolent; occasional nausea after cough; four liquid stools; colic pains, with flatus.

In the succeeding days, increase of diarrhœa, but no sensible change in the other symptoms. There was slight deafness from the 12th to the 15th of May, when death took place, preceded by delirium, the last twenty-four hours.

Sectio Cadaveris Thirty-six Hours after Death.

Exterior.—Nothing worth noticing. (The brain was removed for anatomical purposes.)

Thorax.—Adhesions of upper and posterior part of both lungs costal pleura. A small tuberculous excavation existed in the summit of the left lung, which offered in the rest of its extent, numerous grey, semi-transparent granulations, surrounded by healthy lung. By making a vertical section from the summit to the base, numerous rounded openings were seen, formed by the more or less thickened and uniformly dilated bronchi, their dilatation extending nearly to the surface of the lung. The same state of things existed on the right side, where the excavation in the summit was small, the granulations in still great number, and the bronchial dilatation more considerable than on the left; heart of moderate volume.

Abdomen.—Mucous membrane of stomach red round the cardiac orifice; some ulcerations in small intestine; others of large dimensions in the cœcum. The colon and other viscera, with the exception of the right kidney, were healthy. This kidney presented its natural volume and situation; was of a light yellow colour, and only nodulated in its upper third. The corresponding ureter was hard to the touch, about four lines in diameter, diminishing both in size and density as it approached the bladder. The renal parenchyma was destroyed in the upper third, and replaced by a yellowish opaque substance, in every respect tuberculous, lying on a false membrane of similar nature. The latter was prolonged inferiorly, lining the pelvis and ureter, to the parietes of which it was firmly adherent. Consistent on its adherent, it became gradually soft and yielding on its free surface; was from half a line to a line in thickness, and firmer in the ureter than elsewhere.*

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* Laennec (p. 285), mentions an instance where the ureters were "so much dilated as to receive the thumb, and their internal coat converted

Most unaccountably, we omitted to examine the bladder; we are therefore ignorant whether this tuberculous membrane was prolonged into its cavity. And although this appears probable, from the fact that the consistence and thickness of the ureter diminished on approaching the bladder, we shall refrain from any conjecture on the subject.

177. In two other cases, one was a young man, aged 18, of pretty strong constitution, generally in good health, not liable to cold, and who died of phthisis after seven months' illness. Among other morbid alterations, we observed numerous ulcerations in both intestines, some tuberculous granulations, and a tænia in the portion of jejeunum joining the ileum; a great number of tubercles in the mesentery; the two kidnies redder than natural; and in the summit of the right was an oval tubercle, not encysted, about an inch in its greatest diameter, of a lemon yellow colour and good consistence.

The other example was also a young man, of weak constitution, who died from phthisis of five months' duration. The intestinal mucous membrane was perfectly healthy. No tubercles in the mesentery, they were however numerous on either side of the lumbar vertebræ, around the upper margin of the pelvis, and in the neck. One of the cones in the summit of the right kidney was converted into tuberculous matter, a little softened at the centre. The adjoining cone offered here and there a small quantity of the same substance. The intervening tissue was healthy.

178. In both these instances we have carefully examined the state of the mucous membrane of the bladder and ureters, and have found it free from alteration. We cannot, therefore, attribute the development of the tuberculous matter in the kidney to inflammation. And, in the first observation, how can we suppose the false membrane, lining the pelvis and ureter, to be the product of inflamed lymphatic vessels, which by many medical men are considered the source of tubercles?

179. The bladder, more or less contracted or distended,

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into an adhesive layer of tuberculous matter." These examples present an interesting variety in the mode of tubercular deposition. (Translator.)

never presented any morbid alteration. We have even scarcely observed slight injection of its mucous membrane.

180. In nearly 200 fatal cases of other diseases, we have carefully inspected the kidnies, without even finding the slightest trace of tuberculous matter. The other changes were similar with those occurring in phthisis. With two exceptions we have also constantly seen the mucous membrane of the bladder free from all alteration.

CHAPTER VIII.

OF THE GENITAL ORGANS.

ARTICLE I.—*Of the Male Genital Organs.*

181. In the small number of instances where we have examined the penis of phthisical patients, we have observed nothing worth remarking. But out of forty cases, where the prostate, vesiculæ seminales and vas differens were scrupulously examined, three presented a greater or less quantity of tuberculous matter in the prostate; and in one of these (the subject of the following observation) it occupied the prostate, vesiculæ seminales, and seminal ducts.

OBSERVATION VI.

A German tailor, aged 24, of rather weak constitution, but little subject to illness, light hair, regular features, and spare habit, was admitted into the hospital of La Charité, the 27th of October, 1824. Had been ill fifteen days, and was attacked in the commencement of his illness, while in perfect health, and without any apparent cause, with a moderately copious hæmoptysis, which, in spite of being twice bled, repose and abstinence has since continued. A cough began at the same time, since when he has experienced a sense of heat and copious night perspirations, the appetite had diminished, thirst much increased. No burning sensation or pain in chest.

28th.—Surface of body, including lips and tongue, pale;

prostration; breathing rather quick, cough frequent, a portion of the spitting vessel occupied by blood, more or less frothy, fluid and blackish; percussion of chest clear; respiration distinct, rather weaker under the clavicles than elsewhere; pulse weak, slightly accelerated (90); heat of surface natural; thirst rather urgent; appetite much diminished; abdomen indolent; stools rare. (Venesection of ℥viij.; common emulsion for drink; mustard foot-baths). The hæmoptysis ceased on the 30th, and did not again return.

Until the 5th of February, 1825, the day of his death, the cough was usually violent during the night; expectoration copious, consisting at first of a clear fluid, but at the end of November, and during the following month, this was associated with sputa of an opaque and nummulated appearance. These were of greyish colour, *semi-vitrified* and very scanty during the whole of January. On the 2d of December respiration under the clavicles was coarse, but without any ronchus. This character was still more evident on the 9th of January, and in the anterior and inferior half of the left side, and everywhere posteriorly, the respiratory murmur was mingled with a very fine crepitation; the percussion remained constantly clear. On the 25th, there was considerable dulness of sound about three inches under the left clavicle, and in the same region well marked pectoriloquy. From the middle of January the dyspnœa was considerable. No pains were complained of in the larynx or in the region of the trachea; the voice became changed only eight days before death.

Slight acceleration of the pulse during the months of November and December, which afterwards increased, and from the 15th to the 20th of January it varied from 90 to 110. The heat increased proportionably, constant night sweats, in general limited to the upper part of the body; there were also some irregular rigors during the last month.

Very shortly after the entrance of patient into the hospital, his appetite increased; and by the end of November and following month he eat a fourth or half of the usual house allowance. Stools rare, bowels opened by enemeta of infusion of linseed, during the two first months: the evacuations then became frequent and fluid. No colic, nausea, or vomiting; thirst always urgent.

After the diarrhœa commenced the debility rapidly increased; and during the last twenty days, the patient was confined to his bed. There was slight delirium a few hours before death, coming on at 4 p. m.

A blister was applied to the left arm from the beginning of December, and at the same time frictions of hydriodate of potash every morning in either axilla, were continued to within a few days of death.

Sectio Forty Hours after Death.

Exterior.—Almost extreme emaciation without œdema.

Head.—Very trifling infiltration beneath the arachnoid; some white opaque miliary granulations attached to this membrane in the longitudinal fissure; a spoonful of limpid fluid in the left lateral ventricle; rather less in the right; two more in the lower occipital fossæ. Immediately below the pons-varolii and in the substance of the spinal marrow, was a tubercle about the dimension of a middle-sized pea, neither encysted or softened, and round which the medullary substance was healthy. The remainder of cerebral mass sound.

Neck.—Epiglottis not ulcerated. There was a deep round ulceration at the junction of the vocal cords. Lower portion of tracheal mucous membrane slightly reddened, but of natural thickness and consistence.

Thorax.—From four to five ounces of clear fluid in each of the pleuræ. A white, narrow band extended from the costal pleura to the summit of left lung, where it terminated in a point corresponding to a tuberculous excavation. The whole of the upper lobe was indurated, offered numerous yellow spots at its surface, and two small cavities in its summit; everywhere else there was an almost infinite number of irregularly shaped tubercles, varying in size from that of a pea to a hazel-nut, frequently confluent, and occasionally softened or incompletely excavated. They were less numerous in the lower lobe, and none of them softened. Nearly all were surrounded with hepatized pulmonary tissue. On the right side, the inferior lobe was slightly engorged, but presented no tubercles. The latter were also less numerous in the upper lobe than on the left side; none of them were softened. In neither lung could we detect the grey semi-transparent matter. The bronchi were of a uniform pink tint. Heart small and healthy; aorta natural.

Abdomen.—The stomach contained a large quantity of green bile and a little thick tenacious mucus. Its lining membrane was of a yellow colour and much softened in a small portion of the large extremity. In an elongated surface of from five to six square inches along the great curvature, it was mamillated, of a greyish red, more than half a line thick, and evidently raised above the surrounding parts. Elsewhere it was sound. The condition of mucous membrane of small intestine in its upper third, was healthy; it presented some transverse ulcerations in the middle third, and in the lower portion, some longitudinal and elliptical ulcerations, such as we see in those attacking the glandular structure. The transverse ulcerations did not encircle the intestine; they were from an inch to an inch and a half wide in their centre, gradually narrowing at either extremity. The corresponding mucous membrane was completely removed, and the ulcerated surface very uneven, owing to the thickened and partially destroyed submucous layer. Their edges were prominent, of reddish and yellowish tint, in consequence of the presence of numerous softened tubercles in the thickness of the sub-mucous tissue. Externally the portion of intestine corresponding to the ulcerations, was more or less grey or violet coloured, presenting inequalities caused by tuberculous granulations situated between the peritoneal and muscular tissues. The longitudinal ulcerations were not complete; that is, the mucous membrane was only partially destroyed. Their surface was unequal both from this cause and the reasons already stated. The intervening mucous membrane was healthy. It was pale, thickened, and of the consistence of mucus, throughout the whole of large intestine. The cœcum and right lumbar colon offered five small irregular tuberculated ulcerations, leaving the muscular coat exposed. The mesenteric glands were increased in volume, and almost wholly tuberculous; this was also the case with many of the meso-cœcal, and also of the right meso-colic glands. Liver pale and slightly adipous; the bile of gall bladder very thick and dark coloured. The spleen contained ten or twelve granulations of the size of a small pea, and its tissue was redder than natural. Kidnies and bladder healthy.

The prostate presented its usual volume, and was almost entirely converted into crude tuberculous matter. The vesiculæ were rather voluminous, indurated, and filled with very firm tuberculous substance, divided into masses by the natural cellular intersections of the part. These intersections were indurated, greyish coloured, more than half a line thick, and resembling the external covering of the vesiculæ. From their junction, and for about three inches farther, the seminal ducts were two lines and a half in diameter, and offered the resistance of a tense cord. At the end of this distance they decreased; their parietes were twice their usual thickness, opaque, like those of the vesiculæ and their cavity, filled, in the space indicated, by firm unsoftened tuberculous matter. Beyond this all was natural.*

182. Without fixing our attention upon every point of this observation worthy of interest, we will observe that the form and internal anatomical arrangement of the vesiculæ were not destroyed; that there was no *transformation* of tissue, but simple development of tuberculous matter; that this development was the product of a morbid secretion in the vesiculæ and seminal ducts, which also took place in the ureter which we have described in the preceding chapter. That these facts are very analogous with the cases of tuberculous peritonitis, we shall shortly describe, and that they are contrary to the opinion of those who consider tubercles as the products of the inflammation of the lymphatic vessels.—(178.)

183. Another circumstance merits to be remarked; viz. that the tuberculous matter, elsewhere deposited than in the lungs, as in the spinal marrow, layers of the mesentery, spleen, prostate, &c., was every where at the same stage of development,

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* These rare examples of tuberculous deposition on mucous membranes are remarkable we think from the *surface* on which it took place, and not from any peculiarity in the *mode* of its formation. The structure of the parts enabled us here to *see* the mechanism, as it were, of morbid products, which we are inclined to believe is similar to what takes place in all our tissues; viz. production of something not previously existing, gradually destroying the natural structure, but not resulting from its transformation. (Translator.)

not yet softened; which seems to indicate the existence *of a common cause acting at once on all these points.*

After other acute and chronic diseases, we have never observed tubercles in the prostate, vesiculæ, or seminal ducts.

ARTICLE II.—*Of the Female Genital Organs.*

184. With some very few exceptions they were almost always natural. The colour of the vagina was either white, pink, or livid, and this nearly in the same proportion as in cases fatal from various other diseases; it did not seem to depend upon the more or less embarrassed state of the circulation. In no instance have the parietes of the vagina presented any organic lesion.

185. The *uterus* was generally diminished in volume. As in other diseases, we have often observed some soft, small, pale coloured polypi in the cavity of the body or neck. Occasionally fibrous bodies of inconsiderable volume were developed in the sides of the uterus, at a variable distance from its peritoneal covering. In one case, we found the most superficial layers of the internal surface of the fundus and neck, for about a line in depth, transformed into tuberculous matter (*Obs.* 32); and immediately beneath this, surrounded by healthy structure, some yellowish miliary granulations of the same nature. In this patient the menstruation had continued regular to within three months of her death; we may therefore presume that the development of the tuberculous matter took place subsequently to this period.

We have twice observed a small quantity of the same substance in the *ovaries.* These frequently presented serous cysts of usually small volume, and nearly in the same proportion as after other chronic diseases.

186. We have found tuberculous matter in the uterine parietes, only in cases of phthisis; while the other alterations were nearly equally frequent in this as in other chronic affections.

CHAPTER IX.

OF THE PERITONEUM.

187. There were many examples of serous effusion into the peritoneum. We have observed it (varying from one to eight pints) twenty-two times; that is, in one-fifth of the cases. The men were equally affected as the women; and it was not more frequent where the liver was adipous and the mesentery tuberculous, than when these alterations were not present.

188 Besides the effusion, we found occasionally a *yellowish soft false membrane*, and a certain quantity of thick *pus*, free from odour, such as exists in acute abscesses.—(*Obs.* 4, 16, 31.) This double alteration was present in four cases, and could only be the result of an acute peritonitis; yet the symptoms observed during life, proved that the inflammation was developed a few days, or more frequently only twenty-four hours before death. The fourth and sixth observations confirm the truth of this assertion. In another instance peritonitis appeared to have come on at an equally late period. We did not observe the symptoms, but feel entitled to attribute to it the extreme restlessness experienced by the patient the evening preceding death, and which was remarked by the attendants in the ward.

These few facts show that the peritoneum, like the other organs, is susceptible of acute inflammation in the last periods of phthisis, and that the symptoms are very often similar to those observed under very different circumstances.

189. *Old cellular and partial adhesions* were present in three cases; in a fourth they were universal (*Obs.* 14), resulting from a chronic peritonitis experienced by the patient two years and a half previously.

190. In another instance (*Obs.* 48), we have seen on the surface of the peritoneum covering the great omentum, numerous semi-transparent miliary granulations, as if lying embedded in an incompletely opaque false membrane. We have also found between the layers of false membrane covering the intestines and the anterior parietes of the abdomen, patches of tuberculous matter of various dimensions.—(*Obs.* 32.) Lastly, in a very remarkable instance, which we shall now relate, we have

seen the same matter developed in the omentum and mesocolon.

Observation VII.

A bonnet maker, aged 27, of weak constitution, a month in Paris, was admitted into the hospital of La Charité, the 7th April, 1824, stating he had been ill five weeks. His illness commenced after a severe wetting, and was marked by cough, expectoration, rigors, and partial diminution of appetite. These symptoms persisted; the thirst became considerable, and anorexia complete. The shiverings returned from the slightest cause; the cough had much increased the last eight days, and he had since been sensible of dyspnœa. Weakness was present from the commencement, and soon accompanied with swelling of the legs. The patient had not kept his bed, took a little exercise every day, and had not felt any pain in the abdomen.

On the 8th April,—face pale; slight œdema round the ankles; considerable loss of strength; sputa were greenish or yellowish, partially opaque, mingled with others of a greyish colour, semi-transparent, and as if vitrified; cough rare; considerable oppression; speaks hurriedly; a mucous rale posteriorly and principally in the left side, from the summit to the base of lung; percussion clear; pulse accelerated; heat moderate; tongue dry, rather red; mouth clammy; thirst urgent; anorexia; abdomen tense, elevated, every where rather clear on percussion, and indolent; however, at moments the patient complained of slight uneasiness. Bowels costive.

℞ Sol. of the triticum repens with oxymel and nitre; two enemas; gum potion; two rice creams; broth three times daily.

The same symptoms continued with variable intensity until death, which took place on the 29th of August. Their increase was gradual, almost unperceived; the cough generally very feeble; expectoration never abundant, and not varying in its characters from what we have already described. On some days the patient neither coughed or expectorated. During the three last months the lower two-thirds of right side of chest were completely dull; the respiratory murmur very distant and obscure; there was an occasional crackling sound under the corresponding clavicle. To the left the respiration was weaker in the latter region than in lower portion of same side, occasionally mingled with mucous ronchi, and now and then with a slight indistinct crepitation.

For the first fifteen days the pulse was rather accelerated; it afterwards became calm, and again more frequent towards the fatal termination; it was always weak and regular. The temperature varied with the state of the circulation. It was seldom increased at night, and perspirations were very rare.

The tongue was almost constantly red and dry during the whole time; a small ulceration near its point and on the right side was observed during the last few days. The thirst diminished with the decrease of febrile movement, and reappeared with its augmentation. After some days of abstinence the appetite returned, and the desire for food soon became urgent, but some rice creams and a little milk were alone permitted. Nausea rare; no vomitings. Abdomen more or less voluminous, with occasional uneasiness. No colic pains at any time. Diarrhœa came on at the end of May, persisted in the beginning of June, then ceased, returned at different intervals, and was very copious during the last twenty days.

The countenance became pale and slightly yellow. The patient felt wearied at the duration of his illness, without however suffering much disquietude; he spoke only of the increased size of abdomen, which he ascribed to flatulence. Emaciation rapid, very gradual decrease of strength, and to the last day he perambulated the wards of the hospital. The tendency to sleep increased with weakness. On the 29th of August, at 9 p. m., he rose for the purpose of placing himself on the night-stool, and had scarcely done so, when he fell back against the wall. He was lifted into bed, and in a quarter of an hour afterwards again rose, was assisted in lying down by the nurse, and at half-past nine expired without a struggle.

The treatment consisted in the use of demulcents, slight diuretics, and weak astringents.

Sectio Twenty-four Hours after Death.

Exterior.—Universal emphysema, especially of the neck and lateral parts of trunk, accompanied with bullæ, containing a violet coloured fluid. The arms, though crepitating on pressure, were very small, so extreme was the emaciation.

Head.—Two spoonsful of clear fluid on the upper portion of arachnoid; a larger quantity in the occipital fossæ. Very slight sub-arachnoidein infiltration. Brain rather soft; consistence of septum lucidum and inferior surface of fornix almost pulpy. About a spoonful of serum in each lateral ventricle.

Neck.—Epiglottis and larynx healthy. Mucous membrane of trachea of a livid pink colour, of natural thickness and consistence.

Chest.—Left lung without any adhesions, of a dirty grey colour, interrupted by whitish spots, corresponding to masses of grey tuberculous matter, which were larger and more numerous in the upper than the lower lobe. There was no excavation, and the surrounding parenchyma was healthy. The right lung presented the same lesion, and its two lower thirds were covered by a false membrane, united to one lining the costal pleura, by means of filaments, enclosing in their interstices about ten ounces of clear serous fluid. The bronchi were thin and of a yellowish red tint. The heart was of usual dimensions, containing a small quantity of pale frothy blood. Its parietes flaccid; both ventricles thinner than natural, the left was only three lines thick.

Abdomen.—Its anterior parietes adhered to the subjacent viscera, by means of cellular filaments. The omentum covered the greater part of the small intestine, forming a mass from twelve to fifteen lines thick, uneven, alternately yellow and bluish in colour, composed of the tuberculous and grey semi-transparent matter. The former occupied four-fifths of the mass, and was nowhere softened. The meso-colon and meso-rectum presented the same alteration, but were only half as thick as the omentum. The greater number of the mesenteric glands were tuberculous.

The liver adhered to the diaphragm by means of a false membrane easily separated. It was of a deep yellowish brown colour, of moderate volume, exceedingly soft, and its specific gravity so inconsiderable, that it floated in water like a healthy lung. Internally, there were an infinite number of cavities, varying in size, from a hemp-seed to that of a pea, the majority of which were full. The bile in gall bladder clear and scanty. The spleen rather larger than usual. Its peritoneal covering detached in its inferior half, formed a sack containing at least two ounces of a blackish fluid. Its tissue was exceedingly soft and similar in colour to the fluid just mentioned. Kidneys natural. Stomach partially covered by a false membrane. Although the organ was removed with the greatest possible care, it offered, to the left of cardiac orifice, a circular perforation with pale and thin edges. But from the absence of effusion, we ought to conclude that the perforation was the result of slight mechanical force, and did not exist during life. Internally two very different appearances were present. Near the pylorus and extending to some distance, the mucous membrane was greyish, mamillated, of good consistence, and in twenty points incompletely destroyed over a surface of two lines; elsewhere it was of a nearly white or light brown colour, and extremely soft and thin; the corresponding layers were easily torn. The mucous membrane of small intestine was every where pale and soft like mucus; that of the colon rather less so. No ulcerations.

191. This observation is interesting on several accounts. With regard to the tuberculous matter, it presents a solitary example, in our own experience, of its equal development in the lungs, mesentery, omentum, &c. &c., while, in our other observations, it was always further advanced in the lungs than any where else. The thoracic and abdominal symptoms were in harmony with the morbid condition of the organs.

The re-union of a certain quantity of the grey semi-transparent matter with the tubercular in the omentum, is an additional argument in favour of their mutual connection.

192. In many cases of sudden death, after acute diseases, (more especially the eruptive), we have seen sub-cutaneous emphysema universal, but rarely so considerable as in the present instance. It is the only example we have met among chronic affections; and we have *never* before observed it in the hepatic parenchyma. The volume of the liver, rather less than natural, appears much more remarkable than the emphysema. For, supposing the latter to have taken place either a short time before or after death, the liver must have pre-

viously been extremely small; and, as we possess no example of a liver so diminutive as this supposition would infer, we are almost forced to conclude that the emphysema was gradually developed long before death, in consequence of some peculiar but unknown alteration of the parenchyma.

193. The flaccidity, the elasticity, the inconsiderable thickness of the left ventricle of the heart, form also a singular reunion of circumstances, and to a certain point assimilate the state of this organ with that of the liver. We have never found the spleen more completely softened, and it is the first time we have observed its peritoneal covering partially detached. The morbid alteration of the mucous membrane of stomach, small intestine and colon, could scarcely be more considerable; yet the patient complained of no pain, was almost without fever, and death was still unexpected.

194. In the two preceding chapters we have seen the tuberculous matter deposited on the surface of the mucous membranes of the ureters, vesiculæ seminales, and seminal ducts; that is, developed by means of secretion or exhalation. A similar process no doubt took place in the great omentum, and also where masses of tuberculous matter were found between the layers of false membrane which lined the cavity of the abdomen. It is even probable that these are not rare examples, and that exhalation is one of the most frequent means employed by nature for the production of tuberculous matter. We are the more inclined to believe this, since exhalation is also the source of other morbid productions equally fatal, as for instance that of cancer, developed on the free surface of the peritoneum.

195. After various other chronic diseases, we have seen several cases of serous effusion into the peritoneal cavity. Excluding diseases of the heart, in which this is so frequent, we have found it sixteen times out of seventy-seven cases; nearly therefore in the same proportion as in phthisis. The acute peritonitis coming on shortly before death was present in four cases; three of them affections of the uterus, one a case of dysentery.

But in no instance, except in phthisis,* have we met either tuberculous peritonitis, or the grey semi-transparent granulations on the peritoneum, or in the layers of false membrane on its surface. These results concur with the preceding facts, in pointing out the analogy between the tuberculous and the grey demi-transparent matter, both of which appear confined to phthisis.

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* Up to the *present moment* M. L. has not found a single exception to this law. Vide *Examen. de l'Examen.* p. 24. (Translator.)

CHAPTER X.

OF THE BRAIN AND ITS MEMBRANES.

196. Though in phthisis, the cerebral functions are undisturbed, and in general continue so to the last moment of existence, we have however, in the majority of cases, found some alteration in the brain or its membranes. We shall successively describe them.

197. In patients advanced in age, the dura mater was more or less adherent to the sagittal suture and its vicinity; it frequently presented near the longitudinal sinus, lacerations from two to four lines in length. These gave passage to some round, white, opaque, or semi-transparent bodies, of uniform structure, from a line or rather less in diameter, and two, three, four, or sometimes more in number. Occasionally the internal layer of skull was thinned or destroyed in the corresponding point to the extent of one or two lines. These bodies were more or less adherent to the dura mater, and less frequently present in young subjects than in patients more advanced in age.

198. They were attached to the upper surface of the arachnoid covering the brain, and seldom to the layer lining the dura mater: they were almost always present whether the latter membrane was or was not perforated. They were never farther than two inches from the median line, and increased in number as they approached it. Their volume varied from that of a hemp-seed to a small pea. They were either in groups or disseminated, closely attached to the arachnoid, which was always thickened and opaque in the corresponding points. This fact and the occasional absence of the pretended

glands of the Pacchioni, induce us to consider them as morbid productions. We shall hereafter mention them under the name of "arachnoidein granulations."

199. In other instances the arachnoid was thick, opaque, and free from granulations. In two cases this double lesion occupied the whole of its upper surface. In two others we found fragments of a yellow and extremely soft false membrane. This was evidently very recent, and proves that the arachnoid, like other serous membranes, is liable to acute inflammation, when emaciation and weakness are extreme.

200. Five times, out of ninety-nine cases, there was on the free surface and upper portion of the arachnoid a little limpid or reddish serosity, from three to five spoonsful.—(*Obs.* 7, 12, 16, 22, 28.) Much more frequently, and in about one-half of the examples, we found in the inferior occipital fossæ, one or two spoonsful of the same fluid; and whenever we have opened the spinal canal, there was a still larger quantity.

201. In three-fourths of the cases, beneath the arachnoid, there was a more or less considerable serous infiltration. When very partial, it generally occupied the posterior and superior region. If more abundant it existed everywhere, both in the interstices, and on the surface of the cerebral convolutions, and when very considerable, it was three quarters of a line thick over the latter.

202. In twelve cases, or about one-eighth, we found the pia mater more or less red, thick, and injected. In six of these the injection extended to the cerebral substance.

203. Serous effusion into the lateral ventricles, was equally frequent with the arachnoidein infiltration, and in general proportionate. The quantity varied from one to five spoonsful. No alteration could be detected in the arachnoid, or in the corresponding cerebral substance. We may also observe, that the effusion was extremely slight in cases of sudden death, favouring the supposition that in the majority of instances it was principally produced during the last struggle.

With the exception of a single instance, in which it was turbid, we have not observed any characteristic symptoms.

204. We have seen three times, in the septum lucidum, about a spoonful and a half of serous fluid, and in each case the sub-arachnoidein infiltration and the infusion into the lateral ventricles were proportionably considerable. The parietes of

the septum were firmer than usual, and the internal membrane seemed thickened.

205. The cerebral substance presented various alterations. Fourteen times out of one hundred, it was more or less injected. In five it was much softer than natural; and in two it presented the consistence of the brain of an infant at term. In a sixth case the softening was bounded to the left hemisphere. In these different examples the duration of phthisis varied from seven months to five years. We have six times observed the pulpy softening either of the fornix, septum lucidum, or the corpora striata.—(*Obs.* 2, 7, 15, 25, 26.) And, with the exception of the latter, without any change in the colour of the softened tissue.

206. These different modifications of the brain and its membranes were not peculiar to phthisis. We have encountered them after a variety of other diseases. The granulations of the arachnoid and lacerations of dura mater, were nearly equally frequent as in phthisis. In 105 cases, excluding apoplexies, softening of the brain, and typhus, there were sixteen examples of slight turbid serous effusion over the upper portion of arachnoid. This was rather more frequent after chronic than acute diseases. Nine times, out of an equal number of cases, we have remarked a more or less extensive thickening and opacity of the superior portion of arachnoid. Four times there were some fragments of thin, soft, and yellowish false membranes. The sub-arachnoidein infiltration was present in two-fifths of the cases, and quite as frequent in fatal and prolonged acute affections, as in those more essentially chronic. The pia mater was more or less thickened red and injected, fourteen times; an almost similar proportion to that of phthisis, but much less frequently so than in cerebral diseases, or typhus—in the proportion of two to seven. In these various circumstances the brain was more or less injected; effusion into the lateral ventricles was very frequent; we have remarked it in ninety-two times, in different degrees, within the limits mentioned for phthisis, and it was almost always proportionate to the sub-arachnoidein infiltration. When death was sudden, the quantity was very inconsiderable, which confirms a preceding remark on its probable cause.—(204.) In fifteen cases the consistence of the brain was remarkably diminished, although less than in those instances of phthisis already mentioned. Two only were

acute cases; and as the number compared with chronic diseases was as forty-five to seventy, we may conclude that the softening of the cerebral substance is principally limited to protracted cases. Lastly, we have observed six examples of partial and almost pulpy softening of the brain, all subsequent to chronic affections.

As we have seen that the softening of the brain when either general and not extreme, or partial and pulpy, was almost exclusively confined to chronic cases, we may suspect that both these alterations are sometimes analogous in their nature.

The morbid changes observed in the brain, and its membranes are then equally common to phthisis and other chronic affections. Many of them frequently existed after prolonged acute diseases; only varying in their relative proportion.

207. The only lesions we have remarked exclusively in the brain of phthisical patients, are hydatids and tubercles. We shall not consider hydatids as peculiar to phthisis, but from what has been hitherto observed, we are inclined to believe them intimately connected with tubercles. We have already met one example in the spinal marrow (*Obs.* 6); we will relate a similar one relative to the brain and cerebellum, after having first detailed the only case of hydatids in the lungs we have been able to observe.*

OBSERVATION VIII.

A stone-cutter, aged 54, of spare habit, sober, industrious, and seldom ill, had been subject the last three years to sore throats, which lasted from twenty-four to thirty-six hours; for a still longer period he had been liable to diarrhœa, coming on every month, continuing a day or two, and not accompanied with colic. Six months before entering the hospital, he was suddenly seized, without any apparent cause, or previous cough, with hæmatemesis, to the extent he said of two pints; and some days after he passed a large quantity by stool. He had kept his bed several days afterwards, and during three months could not continue his occupations.

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* It may be remarked here, that our author relates no instance of hydatids in the lungs, and can merely infer their connexion with tubercles from their occasional co-existence together. The fact is not without interest, as indicating a state of constitution favourable to both these productions, and strengthening the idea that there is nothing *specific* in phthisis, but that it depends on a generally deteriorated state of health. The opinions of Dr. Baron, in his work on *Tuberculous Affections*, and of M. Dupuy in his *Traité de l'Affection Tuberculeuse*, that hydatids and tubercles are identical, are too irreconcilable with facts to merit discussion. They are very frequently associated together in the pig, which has probably been the source of the idea of their being modifications of each other. Andral has only met them four or five times in 6000 cases.—*Clinque Med.*, t. iii. p. 393.—Vide also *Precis. d'Anatomie Pathol.*, p. 408.—Laennec, p. 298, note by Translator; also p. 373 *Op. Cit.* (Translator.)

The cough and expectoration had commenced with the hæmorrhage or shortly after; rigors succeeded by heat and perspirations had come on during the last two months, and since the same period the respiration had been laborious. The appetite had diminished; meat was disliked from the commencement; thirst always moderate; no pains in chest, or diarrhœa.

On the 26th Nov. 1822, the day after his admission, weakness not extreme; no headache; intelligence active; respiration easy, with little heaving of chest; imperfectly defined pectoriloquy between the vertebral column and the supra spinous fossa; respiration coarse and loud in the same region; elsewhere natural; cough not frequent; expectoration nummulated, surrounded by a viscous transparent fluid; some shooting pains in lateral parts of chest; voice rough and discordant, as it had been the last month. Sensation of rawness in the larynx during cough or deglutition. Temperature natural; pulse calm, regular, under 70. Tongue and appetite natural; little thirst; deglutition difficult, although the pharynx and amygdalæ were healthy; the whole of abdomen sluggish; had one stool of moderate consistence the preceding evening.

℞ Decot. lich. island; pectoral infusion for drink; mucilaginous mixture—a fourth of house allowance. Four ounces of wine.

The following month, slight general improvement; he felt better, and was free from rigors; aphonia occasionally complete. The appetite increased, and he had his food doubled.

From the 24th of December to 31st January, the day preceding his death, his intellectual faculties remained unaffected, he slept little, had no headache, but became gradually weaker.

The degree of aphonia was variable; a constant pain immediately above thyroid cartilage, with sense of heat, especially at night; swallowing the saliva caused pain; natural state of pharynx and amygdalæ; increase of cough and dyspnœa during the first ten days of January; this diminished after the 15th, when the expectoration became more opaque. At the same time there was a tolerably acute pain corresponding to the left mamma, without distinct alteration of the clearness of percussion in the same region. Under the left clavicle, to the extent of five inches, there was tracheal respiration and gurgling ronchi; this was equally the case posteriorly in the corresponding point, though over a less extent of surface. On the right side there was a mucous ronchus.

The pulse continued slow; the rigors returned during the evening, followed by heat and perspirations.

From the 26th to 28th of December, violent colic pains, succeeded by a copious diarrhœa, lasting from the 2d to the 10th of January; entirely ceasing from the 16th to 17th, and afterwards never exceeding two stools in the four and twenty hours.

Tongue constantly natural; epigastric region free from pain; diminution of appetite from the commencement of diarrhœa.

31st.—Sudden increase of debility; face pale; he complained of a very oppressive feeling of weakness in epigastrium; percussion, under left clavicle for three inches, dull; sputa greenish and greyish, with a slight pink tinge on edges, and of the consistence of pea-soup. Pulse calm and regular; there was slight delirium during night, and death took place at 3 a. m.

Food was given proportionately to the appetite, and state of digestive tube. At the commencement of diarrhœa, rice water, sweetened with quince syrup, was prescribed; afterwards, the diascordium, with a grain of opium, in eight ounces of infusion of cachou.

Sectio Twenty-nine Hours after Death.

Exterior.—Nothing remarkable.

Head.—Strong adhesions of dura mater to sagittal suture. No infiltration beneath arachnoid. On the upper portion and sides of the brain, beneath the pia mater, were observed about twenty small vesicles, elevated about a line to a line and a half above the level of the convolutions, while the rest of their circumference encroached on the cerebral substance, which was perfectly healthy. Their form was rounded, and they were of different dimensions. Three among them equalled in size a common hazel-nut, were smooth exteriorly, and having a pedicle, from which a whitish and opaque membrane, only partially covering the hydatid, seemed to radiate. The latter was formed by a soft thin membrane, containing a fluid which gave a cloudy appearance to water. This structure was common to all, but their surface was less uniform, and presented inequalities somewhat resembling a mulberry. Brain much injected; no other alteration.

Neck.—Total destruction of mucous membrane on laryngeal surface of epiglottis; the edges of the ulceration rather thick, indurated, and whitish; the bottom rugged, and pink colour. Two small superficial ulcerations above the superior vocal cords, of which the left was almost entirely destroyed. Mucous membrane of trachea red and slightly thickened inferiorly; that of the bronchi still thicker; both were free from ulceration.

Chest.—On the left side, rather less than a pint of dirty coloured fluid, enclosed by a false membrane lining the lung; diaphragmatic and costal pleuræ of a florid red internally, and about half a line thick.

At the summit of the upper lobe was a large excavation, covered by a semi-cartilaginous false membrane, reposing either on healthy pulmonary tissue, tubercle, or melanotic masses. In the rest of its extent, it presented a number of small and generally incompletely emptied cavities. The lower lobe contained numerous grey granulations, but without tubercles or excavations. On the right side, (with the exception of the effusion and false membrane), the state of the lung was very similar, though less extensively disorganized, than on the left. Heart sound; aorta, below cœliac trunk, presented numerous cartilaginous and osseous patches. The femoral arteries presented circular and parallel osseous bands, slightly prominent internally.

Abdomen.—Gastric mucous membrane of light pink colour in some points, a little softened in the large extremity, but everywhere of natural thickness. To the left of cardiac orifice, there was an ulceration of half an inch diameter, with irregular slanting edges, lined by the unequal and thickened sub-mucous tissue. The mucous membrane of duodenum slightly greyish, with no other lesion. That of small intestine was natural, with the exception of two small ulcerations, offering some semi-transparent miliary tubercles at their surface. In the large intestine, it was soft as mucus, and in many points of a livid red. In the rectum, there were ten small sub-mucous abscesses, of the size of a pea, and eight ulcerations of similar dimensions. The spleen was softened. The other viscera healthy.

208. Hydatids of the brain are extremely rare; so much so, that at the period of our taking the last observation, M. Chomel had not met a single example. They were never entirely enveloped by the cerebral substance. They protruded under the pia mater, in which no doubt they originated. The healthy condition of the cerebral substance, seems to indicate the slowness of their increase; and the total absence of all cerebral symptoms is also in favour of this idea.

With the exception of hydatids, all the other alterations gave rise to corresponding symptoms. The aphonia was caused by the ulcerations in the larynx. The pain beneath the thyroid cartilage and the dysphagia, pointed out as we shall see (289), or at least gave reason to suspect, the ulceration of the epiglottis. The attack of pleuritis was accompanied with a pretty acute pain in left side of chest. Pains equally acute announced the diarrhœa, which, though only present eighteen days, had produced the pulpy softening, and perhaps *complete disorganization* of the mucous membrane of colon! In the midst of all this, it is worthy of remark, that the pulse continued calm, and the temperature was not elevated! How numerous are similar facts, to prove that it is especially to the investigation of *local symptoms* that the physician ought to direct his attention, if he aims at correct diagnosis!

Let us also remark, that the disease commenced by a copious hæmorrhage, preceding the cough and expectoration. Notwithstanding the assertions of the patient of his having vomited the blood, and although intestinal hæmorrhage succeeded in a few days, it is scarcely possible to doubt that both were depending upon the lungs. First, because hæmoptysis is frequently the precursory symptom of phthisis; and it is sometimes so abundant, that patients both affirm and believe the blood has been vomited. Secondly, because the state of the stomach was not such as we find it in hæmatemesis; and every thing else is in favour of the idea, that during the hæmorrhage, and long after, this viscus was healthy. Lastly, because the blood voided by stool could very easily have proceeded from the lungs, having passed into the stomach by deglutition.

Observation IX.

209. A young girl, aged 19, with active intellect and retentive memory, born of healthy parents, but of feeble constitution, combining the lymphatic and sanguineous temperament, and not subject to colds, entered the hospital of La Charité, 1st of October, 1822. Her illness, dating seven months, had commenced by rigors, dyspnœa, loss of appetite, thirst, and a pulsating pain in epigastric region. During five months, the rigors occurred daily, but were afterwards less regular. The epigastric pain was almost constant; loss of appetite more or less complete; thirst variable in intensity; nausea or vomiting. The dyspnœa had gradually increased; but cough and expectoration had only existed the *last three weeks;* and, twelve days before entering the hospital, she had been attacked with a slight hæmoptysis. The catamenia had been suppressed two months before her present illness, and have not since reappeared; at each menstrual period she was attacked with violent headache. Bowels had been always regular, and emaciation had commenced with the first symptoms.

1st. Oct.—Intelligence perfect; no headache; respiration rather accelerated; coughs little; sputa floculent; percussion every where sonorous; indistinct pectoriloquy between the shoulders; no thoracic pains; pulse 100; appetite moderate; slight thirst; tongue rather red; cervical glands enlarged and painful; a tumour in umbilical region, rather to the right, without tenderness, of the size of an ordinary apple; no pain in epigastrium; bowels constipated.

℞ Fifteen leeches to labiæ; gum mixture; pectoral infusion and soups.

On the following days the appetite much increased, and a fresh application of leeches was prescribed, on account of some streaks of blood in expectoration.

10th.—Patient complained of acute pains in right axilla, where the glands were much enlarged. Drowsiness; face injected; countenance at times animated.

20th to 25th.—Intense headache; face more flushed than usual; sudden flashes of heat more frequent, and more inconvenient.

25th.—Twelve leeches to labiæ without any relief; no sensible change in cough or expectoration; distinct pectoriloquy between the shoulders; respiration cavernous under clavicles; the abdominal tumour seemed increased.

4th Nov.—For the first time some liquid stools, and for the last three days nocturnal perspirations; tumour in abdomen painful.—℞ V. S. ad ℥viij.

From this date to the 26th of December, the day of her death, the face was of a deep red colour, which afterwards changed to a livid tint.

Much drowsiness at times, and at other moments pervigilium; headache constant. The debility rapidly increased, and the patient was wholly confined to her bed.

The sputa, occasionally viscous and spumous, became opaque and streaked with blood, twenty-four hours before death. Dyspnœa more and more urgent.

1st. Dec.—Complained of a burning sensation in the course of trachea. The rigors, which had returned almost daily since her entering the hospital, persisted. Copious perspirations during sleep, which did not yield to successively increasing doses of acetate of lead.

The diarrhœa, with occasional colics, continued. Anorexia from 1st of December; no nausea, vomiting, or distinct epigastric pains. Thirst became urgent; and on the 23d the tongue, which had been whitish or slightly red for some time previously, assumed a dull red colour, and was covered by a number of small, white, opaque miliary spots.

From the commencement of diarrhœa, the patient was treated by rice water, sweetened with quince syrup. Small doses of syrup of poppies were prescribed for the restlessness, but with little success. The food consisted of some rice creams, and occasionally broth.

Sectio Thirty-three Hours after Death.

Exterior.—Integuments mottled; extreme emaciation.

Head.—At the posterior part of right hemisphere, the arachnoid was adherent to the dura mater, in a point corresponding to a nodulated tumour, developed near the surface of the brain, and about the size of a common nut. It was of greenish yellow colour, firm, in every respect tuberculous, and *not encysted.* Round it the cerebral substance was healthy. Between the upper surface and lateral ventricle of same hemisphere, five similar tubercles existed. On the left side there were four, and one of them occupied the posterior and inferior part of the opticus thalimus. At the base of posterior lobe of same side, a portion of the cerebral structure was transformed into tuberculous matter, under the form of a layer four lines thick, and an inch and a half in extent. It was partially adherent to the falx cerebelli, the corresponding layer of which had undergone the same alteration. Lastly, at the inferior part of left hemisphere of cerebellum, a non-encysted tubercle, about the size of a nut, extended to the spinal marrow, intersecting a certain portion of its substance.

Neck.—The cervical glands were very voluminous, completely transformed into crude tuberculous matter; larynx and epiglottis natural; mucous membrane of trachea intensely red, especially posteriorly.

Chest.—A large mass of indurated tuberculous lymphatic glands in right axilla. Universal cellular adhesions of both lungs. An extensive anfractuous cavity in the summit of left lung, containing a small quantity of red fluid, and traversed by numerous bands or intersections of grey substance. The parietes were formed by a semi-cartilaginous false membrane, lying upon tubercles and the grey semi-transparent matter. The remainder of upper lobe was almost entirely transformed into the grey or tuberculous matter, into small excavations, between which the pulmonary parenchyma was of a deep red colour. Pretty numerous crude tubercles in the inferior lobe. Similar lesions in the right lung, but less extensive; two softened tubercles protruded on the surface. Bronchi, of a bright red colour, communicating freely with the excavations. Heart rather small, but healthy; aorta natural.

Abdomen.—About a pint of limpid serum in peritoneal cavity. The liver, rather larger than usual, presented twelve small cysts, from two to three lines in diameter, and filled by a greenish and pulpy substance; their parietes were very thin, greyish, and easily torn. Parenchyma healthy; bile in gall bladder black and thick, like treacle. Mucous membrane of stomach red, mamillated, and of good consistence on the anterior surface, to the extent of three inches; it was pale elsewhere, and very soft in different portions of the great extremity. There were in duodenum ten small ulcerations, from a line to a line and a half in diameter. Others similar to these were dispersed through the whole length of small intestine, either occupying the glandular portions, or situated in their intervals. Their edges were rather prominent, and the bottom lined by the thickened submucous layer. The mucous membrane of large intestine was red in the ascending colon, which also offered two small superficial ulcerations; elsewhere it was pale, and throughout as soft as mucus. The mesenteric glands were voluminous, red, and in part tuberculous. The tumour, felt in the umbilical region, was situated above the pancreas, equal in size to the shut hand; formed by the re-union of a large number of tuberculated lymphatic glands, connected inferiorly with the lumbar glands, which were similarly affected. Not one was softened. The spleen, of ordinary dimensions, contained numerous rounded tubercles, varying from the size of hemp-seed to that of a small nut. The other viscera healthy.

210. The most striking fact in this observation is not the development of tubercles in the brain and cerebellum, but their simultaneous existence in a variety of other organs: as the lungs, neck, axilla, mesentery, loins, and spleen; and, more especially, of their equal development every where, with the exception of the lungs.

We do not see how any explanation of these facts can be attempted, unless we admit the action of one and the same cause upon all these organs at the same time. For if the ulcerations of small intestine were the only cause of the conversion of the mesenteric glands into tubercles, how do we explain those of the brain, axilla, or spleen? How do we account for the similar state of the tuberculous matter, every where unsoftened, if the causes of its production were different, and the time of its deposition not identical? Under no hypothesis can the state of small intestine explain the tuberculous transformation of the glands situated above the pancreas, since the tumour existed previous to the entrance of patient into the hospital, before the commencement of diarrhœa, and consequently at a period when the mucous membrane of small intestine was still healthy. And let not this be considered mere conjecture, for the inconsiderable size and structure of the ulcerations of small intestine are sufficient proofs of their being recent.

Let us also remark, that the tuberculous matter was more advanced in the lungs than elsewhere, which in this instance, as well as in others, favours the idea that, with respect to tubercles, all our organs are subsequently affected to the lungs.

211. The fewness of the cerebral symptoms is also worthy of attention. The increase of headache at the menstrual period, and the sudden flushings of the face, can scarcely be ascribed to the presence of tubercles in the brain, since the pain complained of in the cervical glands might have been their cause. If we reflect also, that the intellectual faculties and the voluntary movements were not affected, the symptoms we have mentioned, if depending on the brain, were at least very insignificant. It will at the same time be granted, that if tubercles and hydatids can be developed in so *latent* a manner in the brain, the same may take place in the lungs; and we ought not to feel surprised that phthisis may remain concealed, as it were, during a variable period of time. This proposition, which we shall hereafter strengthen by numerous examples, is realized in the case before us; for, from the moment of the entrance of the patient into the hospital, pectoriloquy could be detected, while the cough had only existed a few days. Most probably there were pulmonary tubercles from the commencement, that is, as soon as the dyspnœa and fever were manifested, for the most important chronic alteration of the viscera, viz. that of the lungs, can alone explain the first symptoms.

SUMMARY.

212. It is sufficiently obvious, from what has preceded, that the pulmonary organs were not the only ones whose functions

were impeded, but that others were the seat of extensive morbid alterations alone sufficient to produce death; and that they all contributed to hasten the final catastrophe. Their rapid survey will give a clearer idea of the whole.

Tubercles and pulmonary excavations were in one-tenth of the cases coincident with either recent inflammation of a portion of one or both lungs, of the pleuræ, or with the effusion of a notable quantity of limpid fluid in the thoracic cavity.

The trachea presented ulcerations, often of considerable size, in rather less than one-third of our observations. Its mucous membrane was merely reddened, sometimes slightly softened, or thickened in one-fifth.

The larynx was ulcerated in rather more than one-fifth, and the epiglottis in a nearly similar proportion.

The pericardium contained a marked quantity of clear fluid in one-tenth of the cases, and presented traces of chronic or recent inflammation in many others. The heart was pretty frequently softened; the aorta red in the majority of young patients, and its structure more or less modified after the age of 40.

In one-twelfth of the patients the stomach was dilated, and situated lower down than natural. Its mucous membrane was red, sometimes mamillated, a little softened, and thickened anteriorly in nearly the same proportion. In one-fifth it was more or less extensively thinned. We found it in the same proportion very red, softened, and sometimes thickened in the great cul de sac; it was ulcerated, of a more or less greyish tint, and mamillated in many others, &c.; so that it was only healthy in one-fifth of our examples.

In the small intestine there were ulcerations, varying in number and extent, in five-sixths of the patients. They were nearly as frequent in the large intestine, of which the mucous membrane, often red, and in one-half of the cases thickened, was either wholly or partially of the consistence of mucus, so that we have only seen it perfectly healthy, three times.

The tuberculisation of lymphatic glands was less frequent in the neck, loins, meso-colon, and axilla, than in the mesentery, where it existed in various degrees, in one-fourth of the cases.

The liver had become adipous in one-third of the examples.

The parietes of gall bladder were occasionally thickened and ulcerated, and when this was the case, as also under some other circumstances, it contained calculi.

The spleen was softened and under or above its natural volume in a great number of instances. It was tuberculated in one-sixth.

This last alteration was nearly equally frequent in the kidnies, where we sometimes discovered cysts.

In many individuals the prostate was tuberculated; in one of these there was an example of tubercular exhalation in the interior of the vesiculæ and seminal ducts. We have once seen the internal surface of the uterus converted into tuberculous matter.

From one to six pints of clear serous effusion in the abdomen existed in one-fourth, and a small quantity of pus, or some false membrane in the pelvis, in four of these instances. We have seen several cases of tubercular peritonitis. In one the great omentum and the meso-colon presented a mixture of grey, bluish, semi-transparent and tuberculous substance.

The cerebral arachnoid was often partially thickened, presenting more or less numerous granulations in its upper portion, especially near the falx. In two cases it was lined by a yellowish and soft false membrane. The tissue uniting it to the pia mater was infiltrated, and the ventricles distended by a very appreciable quantity of serum in three-fourths of our examples. The same fluid was found in the inferior occipital fossæ, but less frequently and not so abundant. In one-seventh the brain was injected; in one-twentieth its consistence was generally diminished, and in one instance to a remarkable extent. Its partial and pulpy softening was observed in the same proportion.

All the serous membranes were thus very frequently the source of effusion; and it is in the lateral ventricles of the brain that this was most generally observed.

The same membranes was also liable to acute inflammation coming on towards the close of life, and this was most frequently the case for the pleuræ.

In some instances, many of the morbid states just glanced at, as the softening and thinning of the gastric mucous membrane, and the ulcerations of the intestines, were sufficient of themselves to have caused death, independently of the lungs. Observation 7th furnishes an example, where all the viscera, with the exception of the kidnies, were more or less extensively affected. The period to which the commencement of these different alterations could be referred, was very variable. Pneumonia, pleuritis, softening and redness of the great cul de sac of the stomach, pulpy softening of colon, peritonitis, arachnitis, partial and pulpy softening of the brain, could all originate a few days previous to death. The greater part were the result of inflammation, plainly proving that *weakness*, so far from being an obstacle, is, on the contrary, favourable to inflammatory action. The other alterations, dated much further back, sometimes to the very commencement of phthisis; as, for instance, softening with diminished thickness of the mucous membrane of stomach; and in some cases, the large intestinal ulcerations.—(*Obs.* 4.)

These various morbid changes admitted also another division; some were peculiar to phthisis, others were not so; but were present in different degrees, after a variety of other chronic affections.

Among the first class may be enumerated ulcerations of the larynx, and more especially of the trachea and epiglottis; ulcerations of the one or both intestines (principally of the small); the adipous state of the liver: so that by seeing an ulceration in either of the organs mentioned, &c. we would be able to assert, independently of all farther investigation, that the patient had died of phthisis.

These ulcerations, wherever they were situated, in their mode of production presented many points of resemblance. When the mucous membrane was destroyed, the sub-mucous layer gradually thickened, and became uneven; after a time, it ulcerated, and then the muscular coat in its turn began to thicken: this was, like the former, subsequently destroyed (though its total destruction was extremely rare); so that in proportion as one of the coats of the intestine became ulcerated, the succeeding one thickened, and by thus opposing greater resistance to its destruction, protracted the fatal termination.

The last morbid alteration peculiar to phthisis, were *tubercles*, wherever they might be found. We have never observed them in *a single* instance in any organ, without their existing in the lungs; so that their presence in these last viscera, seems a necessary condition for their development in other parts. Another fact which strengthens the idea of this dependence is, that with one single exception, we have always seen the tuberculous matter more advanced in the lungs than elsewhere, and when tubercles existed at the same time in different parts of the body, these were always at the *same degree of development*; and it would be difficult to conceive this uniformity, in parts so distant from each other, so various in structure, unless we admit the influence of one and the same cause, acting simultaneously on a great number of organs; thus making tuberculous deposition, quite independent of those occasional causes we are apt to suppose active in certain cases.

As our object, however, is not to support one opinion more than another, we will remark, that we have found one exception to the law we have established. It was in a case of typhus. No tubercles existed in the lungs, and yet there was a small quantity of tuberculous matter in the mesenteric glands.*

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* We have no intention of supplying what the author has omitted, by detailing the numerous opinions which have been entertained on the origin and mode of development of tubercles. We refer those who are desirous of pursuing the subject, to Dr. Forbes's *Translation of Laennec*; Bayle (*Recherches sur la Phthisie Pulmonaire*); Andral (*Precis. Anat. Pathol.*, and his *Clinique Médicale*); Broussais (*Inflammations Chroniques*, vol. i.); Cruveilher (*Med. Prat. Eclairée par l'Anat. Pathol.*); Lombard (*Essai sur les Tubercles*); Magendie (*Journal de Physiologie*, vol. i.); Trousseau and Leblanc, (*Archives Gen. de Med.*, 1828); and in our own country to the writings of Drs. Alison, Stokes, Baron, Williams, Carswell, Clark, Spittall, Rogers, &c. &c. The enquiry has elicited more talent and ingenuity than any positive and practical results, we would therefore warn the student from attaching too much importance to the subject, and recommend him to receive all opinions and hypotheses with great reserve and caution. Let him remember, that since tubercles are found in every organ of the body, all opinions relative to their formation, which are depending on the peculiar structure of the lungs, are necessarily capable of only *partial* application, while analogy would lead us to suppose, that an identical morbid production, so generally distributed, would originate in some tissue common to *all* our organs.

The *form* and *rapidity* of tuberculous deposition are undoubtedly subject to great variations; these differences are most sensible in a comparative view of tubercles in the lungs and those in other organs, though in many cases of acute phthisis, the formation of pulmonary tubercles seems free from any peculiarities; and, on the other hand, the previous modifications to their complete development, which are in general only to be traced in the lungs, are occasionally present in other organs; these facts may explain many variations in the progress of phthisis, and show how very opposite opinions may be equally true, in *particular* circumstances, while they are all false in any general application.

As the *relative frequency* of tubercles in our different organs is a very important question in the history of phthisis, we shall compare our author's results with those of other observers, remarking that they are not to be regarded as definitive, but merely as incentives to further investigations. Laennec, in his section, "Organic Changes which usually attend Phthisis" (p. 286), while he agrees in most points with M. Louis, has not reduced his observations to the numerical form, and has evidently allowed the condition of the pulmonary organs almost wholly to engross his attention. Andral principally differs from M. Louis in having found rather more frequently tubercles in various organs when *none* existed in the *lungs*, he also thinks them more frequent in the pleural and peritoneal false membranes, testicle and bones. M. Lombard, in his *Essai sur les Tubercles*, in 100 *adult* phthisical patients, found tubercles in the intestines 26 times; in the mesenteric glands, 19; bronchial glands, 9; cervical, 7; spleen, 6; lumbar glands and the sub-peritoneal cellular tissue, 4; axillary glands and anterior mediastimum, 3; sub-arachnoidein cellular tissue, spinal marrow, false membranes of the pleuræ and peritonæum, intercostal muscles, and ovaries, 2 each; gall bladder, liver, posterior mediastrium, pleura, vertebræ, omentum, uterus, prostate, bladder, cerebrum and cerebellum, medulla oblongata, kidnies, and vesiculæ seminales, 1 each.

The same observer, in 100 cases of phthisis in infants, gives the following proportions:—Bronchial glands, 87; lungs, 73 (30 times in only one lung, 13 in the left, 17 in the right); mesenteric glands, 31; spleen, 25; kidnies, 11; intestines, 9; brain, 9; cervical glands, 7; meningœal membranes, 6; pancreas, gastro-hepatic glands, cellular tissue lining the peritonæum, 5; spleen, 4 or 25 (this organ is twice mentioned, with two widely different numbers—the result had better be considered negative); inguinal glands, 3; cellulart issue lining the pleuræ, 2; lumbar glands, bladder, omentum, gall bladder, and false membranes covering the pleura, 1. Though these figures may not be, and probably are not, rigorously exact, yet the variations in the frequency of tubercles in the different organs in the adult and infant, are most striking, and too considerable to depend on any accidental inaccuracies.

The more frequent occurrence of tubercles in the bronchial glands, than in the lungs, (Andral has observed this fact in the *adult*, but very rarely—Vide *Clinique Medicale, Maladies de Poitrine*), in the mesenteric glands than in the intestines, and the inverse proportion in the lungs and in the cervical glands, is remarkable and rather difficult to explain by the doctrine of irritation of mucous membranes. The preponderance of tubercles, in the brain and meninges in infants is also striking, and coincides with general observation. M. Lombard seems to have omitted altogether the pharynx, larynx, and trachea.

We may then conclude that, in children, the distribution of tubercles differs widely from that in adults, that they exist in a greater number of organs at once, and are not so invariably present in the *lungs*. We are disposed to think that the *latter fact* is not satisfactorily established, either for infants or adults, and that the value of M. Louis' observations on this point (which only present one exception in 350 examples), is not yet impaired, for we must remember that MM. Andral and Lombard, not considering the grey semi-transparent granulations to be a modification of tubercles, they no doubt have omitted to mention them in their calculation, and this may be the cause of the non-accordance of their results with those of M. Louis.

Tubercles are not peculiar to man, they are very frequently found in horses, and appear in these animals to be more frequent in the fibro-cellular tissue of the nasal fossæ, than in the lungs.—(Vide M. Dupuy, *De l'Affection Tuberculeuse, &c.* 8vo. 1817. Paris.) They are rare in the intestines, M. Dupuy only finding them twice out of seventy-two cases. The same observer has found them in the pig; and here they are in general associated with the cysticercus. In monkeys, various rodentiæ, and in cows they also frequently abound; and in all occupy a variety of organs.—(Vide Andral, *Precis. d'Anatomie Pathologique*, p. 431, vol. i.) In the twenty-second Number of the *Annales d'Hygiène Publique*, there is a letter by M. Huzard, on the liability of cows, confined in the stables of Paris, to consumption. The author simply establishes the fact, that they are very liable to the disease, but has not analysed the various influences to which they are exposed, in a way calculated to admit of any positive and satisfactory inductions. (Translator.)

PART II.

SYMPTOMS.

213. In this division of our work, we shall successively describe the symptoms of phthisis, and those attending its different complications; the variations it presents in its progress, when acute or latent; the circumstances attending the perforation of the pulmonary parenchyma, and sudden deaths; after which, we shall examine the causes which are generally considered as influencing the development of tubercles in the lungs; and, finally, we shall briefly insist upon the treatment.

CHAPTER I.

OF THE SYMPTOMS OF PHTHISIS.

214. From what has already been said, it will be seen how rare it was to find a case of phthisis in which the morbid alterations were confined to the lungs; and it might be thought impossible, judging from the 123 observations we have collected, to give the history of the disease in a state of simplicity. But let us remark, that it would not be right to view many of the lesions we have described in the light of complications; as, for instance, the ulcerations of the trachea, larynx, and epiglottis, of the small and great intestine, and the adipous transformation of the liver; for these alterations being peculiar to phthisis, must be regarded as part of the disease itself. We may also observe that the pleurisies, pneumonias, &c. &c., coming on in the last period of the affection, do not interfere with its simplicity. We have thus greater latitude for forming our conclusions, than might at first be anticipated; and we are enabled to found a general description of the disease upon a large number of facts. To adopt some method in the description of the symptoms, we shall follow the example of Laennec, and divide

phthisis into two principal stages; the one anterior, and the other subsequent to the softening, and evacuation of the tuberculous matter by the bronchi.

215. *First Stage.*—In the majority of instances the cause of the disease was unknown. One third of the patients ascribed the first symptoms to alternations of heat and cold, to which their avocations exposed them; to draughts; to immersion of the feet in cold water; to drinking cold water when perspiring; but the greater number were far from confident or positive as to the accuracy of their statements, and with many it was simple conjecture. A very few referred, with considerable precision, the first symptoms of having taken cold, to twenty-four, thirty-six, or forty-eight hours after the application of the cause to which they attributed it.

216. Whether an apparent cause did or did not exist, the affection generally commenced by a slight cough, at first exciting no attention, but regarded as a simple cold, to which many of them were subject.

The cough was usually accompanied with clear expectoration, like frothy saliva, or (as existed in one-tenth of the cases) it continued free from all secretions during many months. In some cases it came on in paroxysms, and made rapid progress. After a certain time, the sputa were less clear, slightly greenish, and a little opaque. They completely changed their characters in the second period. In some instances, the first symptoms were preceded by a more or less copious hæmoptysis, though this was generally subsequent. The breathing was not at first sensibly affected, and by some patients the dyspnœa was only complained of at a more advanced period of the disease. Very frequently there were variably acute pains between the shoulders and on either side of thorax, some time after the commencement. If, in this stage of the complaint, we auscultated the patient, in general the respiratory murmur was not sensibly changed. In other cases, the respiration was feeble under both clavicles; or in the same regions, and in a very limited space, there was a slight mucous and sonorous ronchus, with rather less clearness on percussion than on the opposite side.

217. To these *local* symptoms, were added various derangements of different functions. Occasionally, from the commencement, there were alternations of temperature, and night per-

spirations; but most frequently these came on at a more advanced period, and generally in the second stage of the disease. With very few exceptions, the appetite was at first unaffected, but afterwards gradually diminished. If the cough was violent, it sometimes caused vomiting after food; and when this was the only cause, the sickness was of short duration. Very few had diarrhœa. The strength diminished more or less rapidly, and emaciation was soon associated with the other symptoms, though at first its progress was very gradual.

218. *Second Stage.*—The cough was now usually more frequent and more inconvenient, especially during the night. The sputa assumed a greenish colour, was striated by yellow opaque lines, free from air, and presenting a peculiar appearance, being nummulated and as if torn on the edges. Occasionally, from the influence of regimen and demulcents, some of these characters disappeared, but sooner or later again returned. Towards the close of life, they frequently resembled pea-soup, with a greenish or greyish tinge. Lastly, they were often mingled with expectoration, similar to what is observed in the first stage; hæmoptysis was pretty frequent, but in general not copious;* the dyspnœa was in proportion to the progress of the disease; the pains in thorax were often more acute than previously: sometimes there were very urgent pleuritic symptoms, demanding active treatment. The patients usually lay with the head low, and the decubitus varied; however, in some cases, it was exclusively on the side opposite to the large excavations. By auscultation, more or less evident pectoriloquy, gurgling ronchus or cavernous respiration, could be detected in one or various points, corresponding to the summit of the lungs, and in one-third of the cases percussion was dull, under one or both clavicles, and frequently to a considerable extent. It was also in this stage of the complaint that the symptoms peculiar to ulcerations of the epiglottis, larynx, and the different lesions of the mucous membrane of the stomach, developed themselves.

219. In the greater number of instances, the fever was continuous with occasional exacerbations. These occurred in the evening, with rigors, heat, and perspiration. The thirst was urgent, except when the progress of the disease was very slow. The appetite, which was in general variable, diminished as debi-

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* "In this stage of the disease, hæmoptysis to any extent is very uncommon."—Laennec, p. 348. (Translator.)

lity increased, or even in some examples the anorexia was complete, though the mucous membrane of stomach was healthy, or only presenting traces of recent and unimportant lesions.

In a small number of cases the alvine evacuations continued regular to the last. Many only experienced diarrhœa twenty or thirty days before death; but in the majority it commenced earlier. The emaciation made rapid progress, and unless some unexpected accident intervened, death took place in the last stage of marasmus, without any disturbance of the intellectual faculties.

220. The duration of each stage was very variable, and proportionate to that of the disease itself, the limits of which are shown in the following table: —

Duration of Disease.	Number of Deaths.	Duration of Disease.	Number of Deaths.
24 Days	1	11 Months	2
35 Days	2	12 Months	5
50 Days	1	12 Months and a half	2
52 Days	1	13 Months and a half	1
81 Days	1	14 Months	3
3 Months	2	14 Months and a half	1
3 Months and a half	3	15 Months	5
4 Months	2	17 Months	2
4 Months and a half	2	18 Months	1
5 Months	9	19 Months	1
5 Months and a half	2	20 Months	1
6 Months	7	2 Years	8
6 Months and a half	1	3 Years and a half	2
7 Months	8	3 Years	4
7 Months and a half	5	4 Years	6
8 Months	4	5 Years	2
9 Months	7	10 Years	1
9 Months and a half	1	12 Years	2
10 Months	3	14 Years	1
10 Months and a half	1	20 Years	1
Total	63	Total	51

That is to say, out of 114 cases, the duration of which has been determined as accurately as possible, rather more than two-tenths have died, from the first to the sixth month of the disease; four-tenths from the sixth to the twelfth month; rather less than a fourth from the first to the second year; and less than one-fifth from the second to the twentieth.

221. We have endeavoured to discover whether age had any

influence in the more or less rapid progress of the affection; and we have never found this to be the case, unless perhaps in some instances of acute phthisis.

222. On the other hand, the influence of sex appears certain; for if the proportion of deaths in male and female phthisical patients where the disease had lasted more than a year, was equal, it was as thirty to forty-two, when death occurred during the course of the first year.

Perhaps this difference may be explained by considering the adipous state of the liver, and the softening with diminished consistence of the gastric mucous membrane, were much more frequent in women than in men (89, 161), and might have accelerated the fatal catastrophe.

223. As to the comparative mortality from phthisis, it was nearly as one to two; for out of 358 fatal cases in the wards of M. Chomel, during three years and a half, 123 were phthisical; the remaining 235 including a variety of other diseases. And if to this number of phthisical cases, we add those who, while dying from some other disease, presented tubercles in the lungs (viz. 40), we find that out of 355 cases, 160, or nearly *half*, presented pulmonary tubercles, and were really consumptive! This proportion is immense, it does not, however, include a comparison with *all* those cases which are necessarily fatal, in the actual state of our knowledge. Let us now successively study the symptoms we have enumerated.

224. *Cough.*—It varied much. Some patients only coughed towards the close of life (*Obs.* 31, 32), although *cavities* had existed for some time. Others, and they were not numerous, coughed very little; or even after a certain time, *not at all*, until the disease approached its termination.—(*Obs.* 30.) The greater part complained of a troublesome cough, especially at night, forcing them to resort to opium to obtain sleep, which did not always succeed. This cough sometimes came on in paroxysms, with a good deal of dyspnœa, frequently with vomiting, and an oppressive sensation in the epigastrium. In general the violence and frequency of the cough were in proportion to the more or less rapid progress of the disease.

225. *Expectoration.*—The passage from the first stage to the second was, as we have already observed, indicated by a remarkable change in the appearance of the sputa. From

being white, mucous, and spumous, they became greenish, opaque, deprived of air, and streaked with more or less numerous dull yellow lines.

Auscultation of the summit of the lungs, detected resonance of the voice, pectoriloquy, or a very strong respiratory murmur, as if cavernous, often mingled with a gurgling ronchus, or sometimes with a dry crepitation.

We occasionally found among the sputa, fragments of a white opaque substance, resembling (as Bayle has remarked) boiled rice; but this was rare, and in the majority of instances the striated sputa were alone present.

After some time the striated appearance and the occasional fragments of white substance ceased to be observed. The expectoration became uniform in composition, and separated into rounded distinct masses, with their edges as if torn and flocculent. These masses were heavy, more or less consistent, and either sinking or floating on the surface of the clear liquid which was expectorated with them.

After presenting some time a greenish yellow tinge, they assumed a greyish dirty appearance, very analogous to what we find in old tuberculous excavations; this took place towards the close of life, from fifteen to twenty, or, most frequently, only a few days preceding death. They then diminished in consistence, spreading out on the sides of the spitting box, resembling the pulp of boiled peas, and were occasionally streaked with blood or surrounded by a pink areola. This latter colour would no doubt have been observed more frequently, if the patients had continued to expectorate during the last twenty-four hours, for we generally found, after death, the bronchial mucosities more or less tinged with blood.

226. The union of *all* these characters is sufficient, without other examination, almost certainly to indicate tuberculous excavation in the lungs. We lay stress upon *all*, for green, opaque, homogeneous sputa exist in chronic and sometimes also in acute catarrh; but they are not then striated, they do not contain those white particles we have described, and are not usually in distinct masses as in phthisis. The *rounded form* (nummulated) of the sputa is certainly one of their most valuable peculiarities with regard to diagnosis, and in two very remarkable examples (*Obs.* 30, 33), both for M.

Chomel and ourselves, it was the first indication of a tubercular affection.

It is however right to mention, that a few days before death, we have in two instances seen the sputa in separate masses and opaque, although no tubercles, tuberculous excavations, or dilated bronchi existed in the lungs.

227. The expectoration we have described, with the exception of three cases, was constantly present. In these instances it always continued mucous, spumous, white, or slightly yellow, or even greyish, semi-transparent, as if vitrified, without ever presenting that separation into distinct masses, which we have shown to be so important.

In the majority of instances, the greenish, opaque, striated sputa, were associated with a mucous, spumous, more or less viscous expectoration, retaining the characters observed in the first stage; or, instead of this, they floated in a clear thin fluid, like saliva. Sometimes they were unaccompanied by either.

228. The *quantity* of the expectorated matter varied at different periods of the affection. In the commencement, if the progress was rapid, it was sometimes very abundant, from ten to twenty ounces in the four and twenty hours. In the second stage it was less copious, unless indeed the expectoration of the first period was prolonged in conjunction with that of the second.

When this was not the case, it very frequently happened, that the bottom of the spitting vessel was scarcely covered, and we have never seen it completely filled. A small number of patients, only expectorated a few isolated sputa in the twenty-four hours. In two instances, during some days, all expectoration ceased. A third (a fatal case of croup in a woman,* who had large tubercular excavations, and whose illness dated nine months at the time we observed her), never expectorated at any period of the disease; and the care we took to ascertain the correctness of this fact, assures us of its truth.

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* Vide 6th Observation in *Memoire sur le Croup, considéré chez. l'Adulte Recherches sur diverses Maladies*, p. 203.—This memoir contains nine examples of this affection nearly all occurring during the course of other diseases; two in phthisis; three in typhus; one in chronic pleurisy; one in gastro-enteritis; two gastritis. The *progress* of the disease was not affected by the complications. The symptoms were, pain, heat, redness, with dysphagia. Then pain in larynx and trachea, gradually increased alteration of the voice, with dyspnœa, anxiety, but very rarely with paroxysms of suffocation. The formation of the false membrane was always from *above downwards*, sometimes commencing in the nasal fossæ. The duration varied from six to eight

After continuing for some time greenish and opaque, &c. &c., from the influence of repose, regimen, and demulcents, they were more or less modified; they were less opaque, occasionally vitrified in appearance, retaining or losing their rounded form, and after some time resuming their former aspect.

229. During the first stage, when the expectoration is mucous and spumous, the cavernous ronchus and pectoriloquy are absent, and consequently there is no excavation; the sputa therefore could only come from the bronchi. At a more advanced period, they were at once the product of bronchial secretion, and of the contents of the tuberculous excavations. Of this we have proofs in the change in their physical characters, from the moment that pectoriloquy and cavernous ronchus announced the softening of tubercles, and their communication with the air tubes; and more especially in the resemblance of the yellowish streaks, we have described, with the liquefied tuberculous matter, such as we find it in recent excavations. Still later in the disease the same double origin is evident, if we recollect, that we frequently find in the bronchi, communicating with excavations, a substance precisely analogous to the contents of the latter; that towards the close of life, this substance exactly coincides with the expectoration; that the differences so frequently observed in the results of auscultation and percussion before and after expectoration, suppose some change of proportion in the fluids contained in cavities or elsewhere; that it is impossible for bronchi to communicate freely with excavations, and not receive by the impulses of the cough, a certain portion of their contents; and, lastly, that the situation of many of these openings at the inferior part of the excavation, shows that simple gravitation is often sufficient to produce the same effect.

days; only one recovered. The absence of suffocating paroxysms and the formation of the false membrane from above downwards, seem principally to distinguish it from the same affection in children. (Translator.)

These reflections are strengthened by the pathological state of the bronchi in a great number of cases. We have in fact seen (36), that when they were intensely red and much thickened, it was not in the neighbourhood of masses of grey or tuberculous matter, but in that of the large excavations; a fact which cannot be easily explained, unless we admit the passage of the contents of these excavations into the bronchi.

230. Besides, we think it more than probable, that the violent inflammation of the bronchial mucous membrane, at this stage of the disease, considerably modifies the expectoration; that at a certain period, the opaque, greenish, and greyish sputa are equally the product of bronchial secretion as of the cavernous parietes; and that little or no difference exists between the matter furnished by one or the other.*

231. *Hæmoptysis.*—It was present in two-thirds of the cases, fifty-seven times out of eighty-seven.

By *copious hæmoptysis*, we understand, the expectoration (in a few minutes, quarter of an hour, half an hour, or an hour), of several ounces of more or less liquid spumous blood, occasionally dark coloured and coagulated, and sometimes accompanied with contractions of the diaphragm, which induce patients to suppose they have vomited. Hæmoptysis is *inconsiderable* when a few mouthfuls of frothy blood are rendered either pure or mingled with the expectoration. This may be repeated for several months successively. Either kind seemed equally frequent. Out of fifty-seven patients, the hæmoptysis was copious in twenty-five.

232. Copious or otherwise, it sometimes preceded both the cough and expectoration. This was the case with twelve of our patients, and in eight out of these the hæmorrhage was copious. The quantity was more frequently abundant (in the proportion of nine to seven), in the course of or at the commencement of the first stage of the complaint. Bloody expectoration was rare towards the termination. We have only observed it in four cases, twice copious, and twice in small quantity.

233. Are we, however, to consider copious hæmoptysis which

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* It would be easy to multiply opinions and experiments relative to the expectoration in phthisis; we think, however, that Aretæus is right in regarding them rather as objects of historical research than applicable to practical utility. (Translator.)

preceded the cough and expectoration as the precursor of tubercles, or simply as a symptom which reveals their presence? For nearly three years we have constantly questioned every patient under our care and who was attacked with some other disease than phthisis, if they had ever spit blood? And we have invariably received answers in the negative, except where external violence had been received on the chest, or where the catamenia had been suddenly suppressed. Patients subject to bronchitis during many years, and whose breathing was usually free, had never had hæmoptysis. On the other hand, we have seen some individuals with tubercles in the lungs, who had never experienced any direct symptom announcing their presence; so that we ought not to feel at all surprised that pulmonary tubercles should give rise, at a certain period of their existence, to a single symptom, and in particular to expectoration of blood: we therefore think that *hæmoptysis* (with the exceptions already mentioned), *whenever it occurs, renders the presence of tubercles in the lungs infinitely probable.* We bound our conclusion to *probability*, for many well-attested facts appear fortunate exceptions.*

Analogy, moreover, is in favour of what we advance. *For, when hæmorrhage occurs in any internal organ, it is almost constantly a symptom of more or less considerable alteration of structure.* Let us add also, that when hæmoptysis preceded the other symptoms of tubercles, it was occasionally followed by dyspnœa, came on suddenly (*Obs.* 32, &c.), usually when the patient appeared in perfect health, without previous phenomena, or any apparent cause; and it is not unnatural to suppose that the *then* concealed cause was identical with what subsequently reproduced the symptom. But we shall confine ourselves to these few reflections, which are rather indulged in to excite examination, than to supply facts.

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* Pulmonary apoplexy has been considered both by Laennec and others as a frequent cause of hæmoptysis. M. L., from the examination of facts, thinks the coincidence *rare;* he has very frequently found this lesion when no hæmoptysis had taken place.

Hypertrophy of the right ventricle would naturally be thought peculiarly predisposing to hæmoptysis, yet out of twenty-seven cases of this description, not one had experienced it, while in six of them the pulmonary artery and its ramifications were evidently enlarged. (Vide *Examen.* p. 35.) There is often a wide difference between facts and our explanations of facts. (Translator.)

234. *Sex* had an evident influence on the occurrence of hæmoptysis. It was more frequent in women than in men, in the proportion of three to two. Thus, out of forty-two women, who were carefully questioned on this point, thirty-six had expectorated blood; but out of thirty-eight men, it was so, with only twenty-one.

235. The proportion of hæmoptysis in different ages was not the same in both sexes. One-third of the female patients, between the ages of 19 and 40, had not experienced it; while, from 40 to 65, it was only absent in one-seventh; an inverse proportion of what ought to have existed, if, according to the opinion of some physicians, hæmoptysis may be considered in some cases, as a supplement to diminished or suppressed catamenial discharge.* In men, on the contrary, the proportion was exactly similar, either before or after the age of 40; so that out of twelve cases above this period, six had expectorated blood; and out of twenty-six below 40, fourteen. Should the small number of the facts we have analysed be deemed insufficient to establish satisfactorily a relation between the age and the frequency of hæmoptysis in either sex, it will at least serve to fix the attention of observers, and stimulate them to farther investigations.

236. The age seemed without evident influence on the *quantity* of blood expectorated; and the frequency of its recurrence seemed depending on the duration of the disease.

237. We have also endeavoured to decide whether there existed any connection between the strength or weakness of the general constitution and hæmoptysis. Out of forty-eight cases, both these conditions were equally present, though among the women there was a predominance of *robust constitutions.*

238. In some instances, copious hæmoptysis only occurred once; it was seldom repeated three, four, or a greater number of times. The following observation, while an example of this

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* It would appear to us that the age from 40 to 65 was *most* liable to menstrual disturbance; which, if not usually so *violent* as at an earlier age, is at least more *general.* Perhaps this view of the subject is supported by what the author says farther on, that the majority of the cases of hæmoptysis were among *robust constitutions.* (Translator.)

description, will also furnish an instance of the very rare fact of typhus fever coming on in the last stage of marasmus, and after very copious evacuations of blood.

OBSERVATION X.

A young man, aged 18, well made, tall, with black hair, impetuous temper, and moderate corpulency, was admitted into the hospital of La Charité the 26th November, 1821. Born of healthy parents, and subject to dyspnœa from his infancy, he was seized, in the end of November, while in perfect health, and without any appreciable cause, with a copious hæmoptysis. The expectoration of blood had since continued, though in diminished quantity, till within the last few days. Cough had commenced with the hæmoptysis, was accompanied with some expectoration, and caused little inconvenience. No pain of chest, heat, or rigors. Slight sensibility to a low temperature. The patient had refused every kind of treatment, continued his usual food and occupations, and decided very reluctantly to enter the hospital.

27th.—Expression rather lively; general strength only slightly diminished; breathing rather quick; cough rare, and excited by lying on his back; expectoration viscous, yellowish, and spumous; some of the sputa of a bright red. Cannot lie easily on left side; percussion rather duller under left clavicle than under the right. Respiratory murmur occasionally absent, and on lateral parts of left side we heard with the stethescope a sound very similar to that caused by a bubble of air, when agitated with water in a moderate sized tube. Pulse calm, rather full; temperature natural; tongue clean; appetite good; no thirst; abdomen yielding, indolent. Slight diarrhœa the last two days.

R V. S. ℥viij.; barley water; gum mixture; a pint of milk; one-fourth of bread allowance.

No evident change the next day. 29th.—Very soon after the visit, he was attacked with copious hæmoptysis, estimated at ℥vj. Blood dark coloured, or frothy, and bright red. Respiration as before. (R V. S. ℥viij.; blister to the left arm; barley water; mucilaginous mixture, and soups.) 30th.—Fresh hæmoptysis, accompanied with sense of dragging at epigastrium;

no increase of cough; no sense of heat in chest, and no previous rigors.

Up to the 8th of December, he merely expectorated a few sputa tinged with blood; but in the morning of the same day, while perfectly quiet, was seized with an hæmoptysis more copious than the first; respiration weaker posteriorly on the left side than on the right.—(℞ V. S. ad ℥xij.)

The next day, slight soreness of throat, with difficult deglutition; thirst not urgent; bowels regular; heat of surface everywhere natural; pulse accelerated; sputa colourless; face emaciated, and of a dull white aspect.

From the 9th to the 15th, three copious hæmoptyses took place, which were treated by two bleedings and a large blister &c., between the shoulders. On the 16th, sputa moderately thick, yellowish, and imperfectly divided into distinct portions. During the following fifteen days, they presented nearly the same appearance; breathing was more oppressed; cough increased in violence; heat of surface slightly elevated; night perspirations; the appetite increased; the food was gradually augmented; and on 28th, the patient took daily a pint of milk, with four ounces of bread, and sometimes rather more.

Jan. 2.—Considerable dyspnœa; cough increased by lying on the left side; no ronchus could be heard anteriorly; pulse jerking, and pretty frequent; expression of weariness; has scarcely left his bed for some days; considerable emaciation. (Two rice creams.)

From the 2d to the 8th.—No appreciable change, unless in the respiratory murmur, which became very coarse under left clavicle. 9th.—The tongue for the first time was of a bright red colour. 10th.—Almost completely deaf. 11th.—This symptom increased; the patient was continually groaning; pulse rather full and tumultuous.—(℞ V. S. ℥viij.; barley water for drink). 12th.—Tongue dry and blackish; thirst intense; heat of skin rather pungent; pulse less full and less tumultuous than yesterday; gurgling ronchus under left clavicle, and sibilant under the right.—(℞ V. S. ℥viij.) The blood was covered with a pretty thick buff. The day after, three stools were passed.

In the night of 13th and 14th, almost constant delirium. On the morning of the 14th, face pale, countenance depressed, deafness continues; heat of skin dry and pungent; breathing noisy, with crepitating ronchus on the left side; cough frequent; sputa scanty; tongue dry and encrusted.—(Infusion of violets; gum mixture).

15th.—Less dulness of eye; pulse as before, rather full; in other respects as yesterday. The following night he was delirious. On the morning of the 16th, face unequally flushed; intelligence good; tongue dry; temperature elevated; cough rather less frequent; cavernous ronchus was heard under left clavicle; the patient preferred lying with chest uncovered.

The same symptoms persisted until death, which took place on the 18th, at 2, p. m.

Sectio Forty-two Hours after Death.

Exterior.—Emaciation almost extreme.

Head.—Brain firm, not injected; two small spoonfuls of serum in the lateral ventricles, and in the inferior occipital fossæ.

(The larynx was not examined.)

Chest.—Some adhesions at the summit of the lungs; some of the upper portions slightly congested, and presenting throughout their whole extent numerous grey semi-transparent granulations, of the size of hemp-seed. On the left side, the upper lobe was completely converted into tuberculous excavations, containing a muddy greyish fetid substance. These were separated from each other by intersections of a grey semi-transparent matter of half a line or more in thickness. The lower lobe was similarly but less extensively affected. The septa dividing the excavations were thicker, and the pulmonary structure here and there still permeable to the air. Heart of natural volume; parietes of left ventricle thinner than usual; aorta healthy.

Abdomen.—The gastric mucous membrane was pale throughout, and covered by thick mucus; that of small intestine was healthy, with the exception of some red oval spots in the neighbourhood of cœcum. Fæces were firm; spleen larger and more consistent than natural; the other viscera healthy.

239. This observation is remarkable in many respects, particularly as regards the hæmoptysis. The alarming repetition of this hæmorrhage might by some be attributed to the rapid

progress of the disease; but this influence cannot be admitted, since its progress has been much more rapid in other cases (*Obs.* 33), where no hæmoptysis was observed; and also because, in every example we have yet analysed, the recurrence of the hæmorrhage was in direct proportion to the duration of the affection. Venesection was here carried as far as prudence would permit, but without the slightest success. The hæmoptysis frequently appeared the following day, as we might have anticipated had the patient, instead of being bled, been guilty of some excess.

240. As to the question of *causes*, it is proper to remark, that the hæmorrhage came on suddenly, without any evident reason, without previous symptoms or cough, and in the midst of apparent health; it could not be considered as the effect of bronchitis, which did not exist, but must necessarily be attributed to the existence of tubercles, of which it was the first indication. If this be admitted, it follows that the tubercles were independent of all bronchial inflammation, and were here the cause and not the effect of bronchitis. We shall again insist upon this very important consideration, remarking only that, in the instance we are now analysing, the opinion we have expressed is confirmed by the results both of auscultation and percussion. We have in fact seen that when the patient first entered the hospital, percussion was less clear under the left clavicle than on the opposite side; and this indicated an alteration already too considerable to be ascribed to the inflammation of the bronchial mucous membrane, which, whatever opinion we may adopt, was necessarily recent.

241. We shall not insist on the typhus fever coming on towards the close of the patient's life and after very copious venesection, particularly since cases of this description are so rare, that we have not met a second example; and our observation in this respect is not sufficiently exact to draw any legitimate conclusions. The mucous membranes were not properly examined; we have mentioned the universal paleness of that lining the stomach, but we have said nothing as to its consistence or thickness; and although it is rare to find it softened or in any way affected, when its paleness is general, yet the fact is not impossible, and here a negative was necessary. The red spots mentioned in small intestine were perhaps the same as

those which thicken and ulcerate in the progress of typhus fever, but this cannot be determined from so brief a description. We cannot therefore affirm that the symptoms depended, or did not depend, on one or the other lesion, nor can we expect for an observation so incomplete, that confidence which it does not merit. It cannot be too often repeated, *that the science of medicine is faulty in its foundations; facts, that is facts properly and completely observed, are deficient in the great majority of instances.*

242. In some rare examples hæmoptysis seems to have been produced by a paroxysm of coughing. It almost always occurred without any assignable cause, and was seldom accompanied with either a sense of heat or pains in chest, or any variation in the state of the pulse.

243. *Dyspnœa.*—It was generally very slight, not complained of by the patients, and seldom even noticed unless after exercise. Its progress followed that of the principal affection, and it was seldom extreme; we have never met with more than three cases, where the patient was compelled to lie with the head much elevated, or to retain a sitting posture. After death, we found nothing to explain this anomaly; the heart was healthy, valves unaffected; there was no effusion into the cavity of the pleuræ.

244. In a certain number of cases, dyspnœa was only sensible one or several months after the origin of the cough. Most frequently it commences with it: it even sometimes existed anteriorly (in about one-tenth of the cases), and when this occurred, it was often coincident with hæmoptysis which had also preceded the other symptoms. Under these circumstances, the dyspnœa and hæmoptysis were probably not symptoms preceding tubercles in the lungs, but the first indications of their existence. Perhaps this was equally the case when no hæmoptysis was present; but that *it was* so is far from positive, for many patients had their breathing more or less affected from infancy, and it was impossible to date the origin of phthisis from so remote a period; for out of these examples, which formed one-ninth of the whole, an equal number had attained the age of 50, as among those whose dyspnœa had coincided with the first symptoms of the disease.

245. The oppression was referred to the central part of

chest, whatever differences might exist in the state of the two lungs. There were only three exceptions to this fact, and in these the uneasy sensation seemed confined to the side principally affected.

246. *Pain* is not, we well know, the most troublesome symptom in phthisis; many were altogether exempt, or only sensible of it when their attention was directed to the subject. A few complained spontaneously; and it is no doubt owing to this absence of pain, and frequently its insignificance and rarity, conjoined with the insensible progress of the symptoms, that patients are so completely deceived as to their real situation. Without mentioning the pleuritic symptoms, which compelled some of them to ask advice, the greater number had experienced pains either between the shoulders or on the lateral parts of the thorax. These last were present in one-third of the examples, and were sometimes rather intense and of variable duration. They came on at very different periods of the disease; sometimes two or three months before death, when the cough and expectoration had lasted one, two, or more years; at other times (and these were cases where phthisis had gone through all its stages in five or six months), they were present very shortly after the appearance of the first symptoms; they sometimes persisted only a few days, in others one or more months; occasionally they were sufficiently intense to inconvenience the patient, but not to compel him to remain in bed.

247. Most frequently there was a direct correspondence between the pains and the adhesions, mostly cellular, of the lungs and pleuræ, and very often with the number and size of the excavations. And as these two lesions were almost always combined and proportionate to each other, it would be difficult to assign any cause to the pains, unless we were aware that tubercles are developed in other organs without pain; and as those we are now considering are very similar to pleuritic pains, increasing like them by inspiration and cough, of an acute and lancinating character, they are no doubt the consequence of chronic inflammation. We have, in a small number of instances, been able to convince ourselves in a more direct and positive manner, that this was actually the cause of the pains experienced by phthisical patients. It was in those cases where the lungs presented on one side large excavations with very slight adhesions, on the

other universal cellular adhesions and no excavations, and when the pain had been confined to the side where the adhesions were greatest.

As, however, we sometimes see tuberculated glands in the neck and axilla, become the cause of pain, it is undoubtedly possible that, under certain circumstances, this may be the case with tubercles in the lungs. It is, in fact, what we have remarked in the only example of encysted tubercles which we have collected.—(*Obs.* 31.) This patient had experienced, during the last fifteen days of her life, pains between the shoulders, and no adhesions existed between the lungs and pleuræ. This was also the fact in some instances of acute phthisis, where more or less intense pains were felt in lateral part of thorax, and no trace of pleurisy discoverable after death.—(*Obs.* 35, 36.) It is then possible that, in some examples, the pains in the chest may be owing both to the development of tubercles and the adhesions which follow.

248. Twenty-two patients assured us that they had never felt any pain in the thorax, and in the majority of these, adhesions were bounded to the *summit* of the lungs, while the excavations were equally extensive and numerous, as in those cases where acute pains had existed. This confirms what we have said, as to the most frequent cause of pains in the chest in phthisis. We can indeed easily conceive how adhesions, limited to the upper part of pleuræ, should not cause inconvenience, the corresponding portion of thorax being the least moveable, and pleuritic pains appearing to be acute, in proportion to the elevation of the ribs and expansion of the pulmonary parenchyma.

249. Besides, if, as we have remarked in the first part of this work (42), the inflammation of the pleuræ and the consequent adhesions are often depending on the influence of tubercles, we can understand why pains are present in such variable periods of the disease, since tubercles themselves are progressively developed.

250. To sum up our remarks, we find that thoracic pains corresponded with the adhesions of the lungs to the pleuræ, and not with the dimensions or number of the excavations. They appeared to result from adhesions formed by chronic inflammation of the pleuræ, and when these were bounded to the summit

of the lungs, no pains were experienced, although the excavations were considerable. We may add that age, which seemed without influence on the progress of phthisis, had a very sensible effect on the duration of pain.

251. *Fever.*—The majority of patients having fever when admitted into the hospital, we have endeavoured to fix the period of its commencement with precision, and in this we think to have succeeded, whenever we have been able to determine the time in which the rigors, or the alternations of heat and cold, had commenced, especially when these were accompanied from the first with thirst and palpitations. Taking this for our guide, the fever had commenced with the earliest symptoms of phthisis, and accompanied them through their whole course, in rather more than one-fifth of the examples, or in twenty-five out of ninety-five cases which were complete as to the particular we are now considering. Five among these were examples of acute phthisis.—(*Obs.* 33, &c.) Among the remainder the disease had lasted from five months to three years, including several examples of simple phthisis, and among others, two very remarkable ones, of which we shall speak in our chapter on latent phthisis.—(*Obs.* 27, 29.) In nineteen other cases the fever had commenced in the first stage of the disease, in those cases where the affection, with more or less complication, had passed through its different gradations, in a period varying from three months to five years. In about three-fifths, the febrile state was present in the second stage of the disease, occasionally only a short time before the fatal termination; in every instance, the morbid condition of the lungs was associated with alterations in a greater or less number of organs.

252. Since fever frequently commenced in the first stage of the complaint, or even from its very beginning, that is, when the lungs were still the only organs affected, we must conclude that its principal and often only source was the more or less extensive alteration in the respiratory organs.

253. Except in cases of very acute or very chronic phthisis, it was impossible to appreciate the circumstances which accelerated or retarded the presence of the febrile state; and to occupy ourselves with the investigation of this, as well as the innumerable variations in other symptoms, would in our opinion

be endeavouring to discover the cause of differences in tastes, physiognomy, and the great varieties of *en-bon-point* in individuals who are in perfect health. We must know how to content ourselves with the knowledge of the principal facts, and not seek to explain every variation they may present.*

254. Although rigors were among the most frequent symptoms of fever, they were not constant, being absent in one-sixth part—sixteen times out of ninety-five. The exceptional cases complained only of great sensibility to cold,

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* In the minds of many *fever* and *inflammation* are inseparable, but a variety of considerations render this view of the subject untenable. We shall take advantage of the authors remarks in his *Examen.* p. 36, to make the reader acquainted with the evidence of facts on this point. There is no acute affection which is not preceded for a few hours or days, by more or less intense febrile movement, and during this period *no local symptoms*, to which it might be attributed, can be observed. M. Louis has remarked this fact in five-twelfths of those attacked by erysipelas of the face; in one-half of the cases of measles; in a still greater number of pneumonias (coming on in healthy individuals); in one-fourth of the examples of cynanche tonsillaris, and *invariably* preceding small-pox in the adult. Not a single symptom could be detected capable of revealing an appreciable alteration of any of the organs presiding over our different functions. That they *were* modified was evident, but no one could ascribe that modification to inflammation. On what it depended we are at present ignorant, but we are justified in saying that it is *not* inflammatory. The development of febrile movement in the early stages of phthisis, when the lungs are the only organs affected, is therefore no proof of inflammation, and we must admit that the former may exist without any appreciable *local* lesion.

Is there not great analogy between this precursory febrile movement, terminating in eruptions or some local inflammation, with what in other circumstances *continues*, without producing any particular affection, and which we call continued fever? Are we more justified in considering the latter of an inflammatory nature than the former? Though perhaps continued fever is never wholly unaccompanied by some local disease, yet may not this be a very secondary cause of the continuance of the fever? The fact, that in eruptive diseases the *fever* is arrested by the local disease it tends to establish, is remarkable, and confirmative of the foregoing observations. Intermittent fevers, irritative fevers, all admit of the same reflections. The want of *proportion* between the *local disease* and the febrile disturbance, so frequently observed in erysipelas, pneumonia, &c., is another argument for their independence of each other, or rather for the possibility of fever existing without inflammation. (Translator.)

declared they never had any shiverings before coming to the hospital, and were not liable to them during their residence there. This fact is not more singular than the not unfrequent absence of the same symptom in cases of phlegmonous suppuration.

In the greater number of instances, the rigors came on every evening, and seldom at any other period. While in general occurring only once, in some cases they were irregularly repeated several times in the day; but we have *never* observed two distinct rigors which, in the opinion of some authors, daily recur at a fixed hour.

255. Occasionally the rigors which took place daily at a particular hour, were sufficiently inconvenient to require treatment for their suppression. This was sometimes successful, and at others merely lessened their duration or intensity. The temperature however remained always elevated, and after the rigors had been suspended during a variable period of time, they returned with the same violence as before the administration of the febrifuge. It is also easy to foresee that the state in which the stomach of phthisical patients usually is, forbids the indiscriminate use of the sulphate of quinine.

256. The shiverings were generally followed by heat and perspiration. We say generally, for perspiration was absent in one-tenth of the examples; and on the other hand, they sometimes existed without the rigors: this was principally during the night, when the patient was asleep. The perspirations were so copious and inconvenient in some instances, that sleep was dreaded. They did not appear to depend on the state of the other organs, and generally *coincided* with the diarrhœa, being frequently most abundant when the alvine evacuations were numerous. We have purposely multiplied our questions, to discover whether any dependance existed between these phenomena—if they were not supplementary of each other; we have never succeeded in affording ourselves proofs of the *balancement* of our functions insisted upon by some others. We have distinctly observed, in the course of perspirations more or less copious, that the diarrhœa diminished during two or three days; but it soon returned with its previous violence, proving that its variation was a simple coincidence, and not a consequence of the state of the cutaneous perspiration.

257. It may perhaps be urged that if the "balancement" alluded to is not real in cases of phthisis, it is not less certainly the fact in other diseases. But we have equally failed to discover it in fevers, rheumatism, and in general whenever one of the two symptoms came on during the existence of the other, their mutual influence and dependance was never evident; so that we think ourselves justified in saying that when the contrary appears to be the case, it is probably purely accidental and exceptional. This fact is not perhaps without importance, since the majority of medical men regard the "balancement" of our functions as a fact on which they found their practice.

258. The *sudamina*, so frequent after the perspirations in continued fever, are much rarer, cæteris paribus, in the course of any other disease. We have occasionally seen them in phthisis, but never so numerous as in typhus fever, where the elevation of the epidermis is sometimes so general, that by very slight friction it might be entirely removed.

259. Let us remark, that these copious perspirations indicated disorder in the functions of the skin, as remarkable by its intensity as duration; that this disorder, whether sympathetic or otherwise, was not the less positive, and existed without any sensible change of structure in the organ itself; thus, a function may be more or less modified during a long period of time, while the organ on which it depends offers no appreciable change of structure. We may also observe, that while facts are wanting distinctly to *prove* that diarrhœa may exist without appreciable lesion of the intestinal mucous membrane, we may presume this to be the case, from the analogy existing between the functions of the cutaneous and mucous surfaces. Of this we cannot be positive, for in our opinion, analogy is only useful to point out fresh subjects for investigation, to lead us to the discovery of facts, but never to supply them; were it otherwise, we might conclude a thing possible before it existed, which is absurd. Lastly, to those who consider inflammation as the only cause of functional derangement, it would be difficult to imagine this phenomenon present in the perspirations of phthisical patients, whose skin remains pale and relaxed in the midst of these immense evacuations.

260. The *thirst* presented, like the other symptoms, very remarkable variations; *absent* in one-fourth of the cases, it was

more or less intense in the remainder, preserved no constant relation with the state of the stomach, intestinal canal,* or with the diarrhœa; it was much more frequently proportionate to the fever, commencing almost constantly with it, accompanying its progress, and increased during the evening and night exacerbations. In a few instances the thirst had been preceded by the fever.

261. *Appetite.*—When speaking of the gastric symptoms, we shall then see the numerous variations in the appetite, for the dependence of this on the state of the gastric mucous membrane was too evident to admit of separate description.

262. *Diarrhœa* was so frequent, that we feel justified in considering it rather as a symptom than a complication, and shall consequently not defer its consideration. Out of 112 cases, five only had no diarrhœa. It presented numerous gradations of intensity and duration. In one-eighth of the patients, it commenced with phthisis, persisting until death, having lasted from five to twelve months. In some of those who died after an illness of four or five years, it was almost constant during this long period of time. In the majority of cases, it commenced in the second stage of the affection; in others, towards the very close of the disease: so that we could consider it under two principal points of view, viz. when it occurred towards the close of life, or when it dated from a period considerably anterior to death.†

263. *Diarrhœa towards the close of life.*—We place in this

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* In the majority of cases where thirst was absent, the mucous membrane of stomach was natural, and diarrhœa had only been present in the last period of the disease; sometimes thirty, forty, and fifty days before death: twice only, it had existed, with some short intermissions, nine months or two years. In patients, where thirst was more or less urgent, the gastric mucous membrane was nearly healthy or only presented recent alterations, in rather more than one-half of the examples;—diarrhœa was nearly always present, but preceded by the thirst, sometimes twenty or more months, in two-fifths of the cases. In other patients the thirst commenced with or succeeded the diarrhœa, when even the latter had been violent.—(*Obs.* 4.) Thirst was extremely urgent in two individuals whose gastro-intestinal mucous membrane was healthy, and who had never had diarrhœa. (Author.)

† The following analysis only refers to ninety-five cases, where the mucous membrane of both intestines was carefully examined. (Author.)

class all those cases where the diarrhœa commenced from twenty to five days before death. They formed one-fourth part of the whole. In some this symptom was accompanied with slight increased heat of surface, universal rigors, and variably intense colic pains. Most frequently nothing similar was observed. The stools were not unusually frequent. When we have examined the evacuations, they were yellowish, pultaceous, consisting of a deep yellow coloured fluid, free from blood or mucus, in which fragments of a variably consistent substance floated. The smell was not very offensive.

With only one exception, the mucous membrane of both intestines was the seat of some alteration. In one-half of the individuals there were ulcerations in the ileum and colon, sometimes in both; but, with one exception for the former, and two for the latter, they were small and few in number. In four-fifths the mucous membrane of large intestine was soft as mucus, and almost invariably more or less red.

264. There was an exact correspondence between the symptoms and the alterations to which they might be attributed. For, if the diarrhœa had only preceded death by a few days, this seemed to be equally the case for the ulcerations and softening of the mucous membrane of the colon. In fact the ulcerations were small, the cellular tissue lining them very thin; and, from their natural tendency to increase, and that of the cellular layer to thicken, we might certainly consider these as recent. With regard to the softening, with or without redness of the mucous membrane of large intestine, we will observe, that it was equally intense, in cases fatal in two or three weeks from a simple attack of dysentery; most ordinarily it was evidently the result of inflammation, which in its commencement had in many cases been attended with slight febrile movement, liquid stools and colic pains; and where the pains and fever were absent, the origin of the alteration must coincide with that of the diarrhœa, unless you admit that colitis was almost always latent, which is impossible. Every consideration then seems to favour the conclusion, that the small ulcerations and the softening we have described, with the inflammation on which they most usually depended, were very recent at the period of death.

If we cannot imagine that so important an alteration as the pulpy softening of the mucous membrane of the large intestine, could be constantly latent, we may however conceive the *possibility* of its being so, and in fact we have collected three observations where this was actually the case. In one of these, the softening was conjoined with a tolerably intense red colour of the mucous membrane. There had been no complaint of pain.

The diarrhœa was less copious in individuals where ulceration alone existed, than where softening was present:—A result easy to foresee, from the difference in the real importance of the two alterations.

265. The *diarrhœa of long duration* presented two principal modifications: it was either continued or remittent.

266. The duration of the latter varied from fifteen months to forty-eight days. The remissions were variable, from eight to ten, fifteen, or twenty days; stools were generally scanty; colic pains rare. Fifteen of our patients were examples of this. In ten, the small intestine was ulcerated; in six, this was the case with the colon, and, with the exception of two instances, the ulcerations were small. Its mucous membrane was exceedingly soft in ten others, and in three of these red and thickened; so that this series of patients offered nearly the same alterations, both as to intensity and extent, as those we have just described, where the diarrhœa had commenced only a few days before death. It seems natural from this alone, to suppose that the lesions observed after death, were very secondary in the production of the diarrhœa; that they originated in the second series as they did in the first, that is, towards the close of life; and that previously to this period the diarrhœa resulted from a simple alteration of secretion, which we have already remarked, appeared to be the case for the perspirations.

267. Chronic and *continued* diarrhœa has lasted from one to two months, sometimes even longer. It was more or less violent, and generally accompanied with colic. In one instance, where it was prolonged five months (*Obs.* 4), there were not less than from twelve to fifteen stools during the day. Out of forty-one patients, affected in this way, thirty-five had ulcerations in the small, and thirty-one in the large intestine. Twelve times the ulcerations of the small intestine occupied its whole length. They were of considerable size, and about an inch in

diameter in thirteen patients, whether they were universally or only partially distributed. There were nineteen examples of extensive ulceration of large intestine, and thirty of softening of its mucous membrane. The latter was red in seventeen of these. Thus, after long and *continued* diarrhœa, we found extensive and numerous ulcerations; that is, morbid alterations similar to what we find when diarrhœa has been chronic but with occasional intermissions, though in the former case the ulcerations were much more intense, and evidently of longer duration.

268. Large ulcerations existed in one or both intestines, in six patients, where the diarrhœa had been copious and continued during two, three, five, and eleven months. In others, they were only considerable in the small intestine or colon. If in the small, the diarrhœa was not the less chronic and continuous; an evident proof that it cannot be considered as exclusively resulting from alterations in the large intestine. We must however admit that the latter were its principal source in phthisis, for the mucous membrane of colon was much more frequently softened and inflamed than that of the small intestine. What however renders it still more improbable that the affections of the colon are the only cause of diarrhœa, is, that in continued fever, when this symptom is very seldom wanting, the chief and often only alteration, is in the ileum.

269. To be able to predict with some certainty, the existence of large and numerous ulcerations, it is not only requisite that the diarrhœa has been chronic and continuous, but that the stools have been frequent; for, in many instances where this last condition was wanting, although the diarrhœa had continued many years uninterruptedly, the ulcerations were very inconsiderable.* But we have never met with an example where the diarrhœa was chronic, continuous, and when at the same time the stools were numerous, without large intestinal ulcerations.

The certainty of the diagnosis would be still farther increased by the inspection of the evacuations. For, in accordance with what we have remarked in the former part of this work (143), their colour was greatly changed, and their odour similar to that of animal substances some time in maceration, when the ulcerations were extensive and numerous.

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* These facts confirm what we have already said, viz. that vitiated secretions are probably in many instances a cause of diarrhœa. (Author.)

270. If those in the rectum were small they exerted no influence on the diarrhœa. If they were extensive, and particularly if situated close to the anus, the dejections were extremely frequent, mucus, accompanied with tenesmus, sometimes streaked with blood, and generally involuntary. The loss of strength and flesh was also proportionate to the number and frequency of the stools.

271. *Emaciation*, was present in one-half of the cases from the commencement of the first symptoms, whether the progress towards the fatal termination was rapid or slow, varying for example from five months to three years. In a very few instances it coincided with the first appearance of the diarrhœa and loss of appetite, although the gastric mucous membrane was often perfectly sound or its alterations still recent at the moment of death. In one-third, it seemed to originate with the fever; its origin therefore, in the majority of cases, could not be attributed either to the fever, diarrhœa, loss of appetite, or to a morbid state of the gastric mucous membrane: we are then obliged to ascribe it to the more or less extensive alteration of the pulmonary parenchyma, interfering with the nutritive function. The diarrhœa once established, the emaciation proceeded rapidly. The state of the gastric mucous membrane exerted also an active influence, and unless accident shortened the patient's life, the marasmus became extreme.

Loss of flesh can furnish to the physician very useful indications as to the diagnosis of latent phthisis; that is, when the patients, without experiencing any local symptoms, are harassed by continued fever of some duration, and accompanied with dyspnœa and emaciation. Under these circumstances it is rare that the seat of the disorder is not in the lungs, and the affection tuberculous. It is an additional reason, to have recourse to all the means in our power, to discover the exact state of the lungs.

272. Emaciation was evident in almost all the tissues. The adipous ultimately disappeared; the skin itself became thinner; the muscles greatly diminished in volume. We have already insisted on the state of the heart; but the change was much more evident in the muscles of volition; among these, the flat

muscles, the temporals, and those covering the parietes of the chest, &c. &c., were often not one-third of their natural thickness. The muscular layer of the stomach has also appeared thinner. The uterus, &c. &c. was evidently in several instances smaller than natural.

273. The *face* had no particular expression. In patients where the complexion was habitually florid, it became gradually pale. In some few instances its colour increased, which appeared owing to peculiar circumstances.—(*Obs.* 55.) The cheeks were not red in the intervals of febrile exacerbation, and the slight blush which they then assumed, was similar to what we see in the course of other chronic affections.

The *remainder of the body* shared in the paleness of the face. Very rarely there was slight œdema round the ankles; and still more rarely, occupying the whole of lower extremities. —(*Obs.* 3.)

Sometimes one or both hands or the fore-arm were slightly infiltrated, which announced a serous effusion in one side of the chest. But none of these symptoms were peculiar to phthisis, and were not more frequent in its course than in that of other chronic diseases.

CHAPTER II.

DIAGNOSIS.

Auscultation and percussion are the means by which we arrive at the diagnosis of phthisis; and we shall separately consider the results obtained previous to, and after the formation of tubercular excavations.

274. *First Period.*—The diagnosis is here as in other chronic diseases, often uncertain; but we believe that by a careful examination of the facts, we may frequently acquire a very high degree of probability. We will glance at some of the principal circumstances.

In the greater number, the *cough* came on without any evident cause; and frequently one or several months elapsed without expectoration. This apparent absence of cause and dryness of cough are of themselves very remarkable, differing from what occurs in simple bronchitis.

The *expectoration* is either present from the commencement, or only at a more advanced period of the disease, and at first is clear, frothy, white, very analogous to saliva, and retaining these characters for a longer or shorter time, which is not the case in simple pulmonary catarrh.

Thoracic pains, when present in the latter affection, are generally felt in the middle of *sternum*, while in phthisis they are not only frequent, but are situated in the *sides* of chest and *between the shoulders*, with also other characters to distinguish them from those in bronchitis. Conjoined with the preceding symptoms, pains, such as we have described, are strongly indicative of tubercles in the lungs. On the other hand, out of 1200 patients, not including cases of amennorrhœa, or those arising from external violence, *not one, with the exception of phthisical cases, had experienced hæmoptysis*; so that the occurrence of this symptom, when preceded or followed by thoracic pains, cough and expectoration, having the characters we have described, renders the presence of tubercles in the lungs *almost certain*. And as this re-union of symptoms is not unfrequent, we now see how it is possible in many instances to diagnosticate phthisis at a very early period.

275. There is also very often in a limited space a difference of sound on percussion under one or both clavicles; and as tubercles are almost invariably developed from the summit to the base of the lungs, this fact, if well determined, greatly increases the certainty of our diagnosis. The *respiratory murmur* is also rather weaker in the point corresponding to the dulness on percussion, than in any other portion of chest; *

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* It may be here useful to mention another result of auscultation, on which the attention of medical men has only been lately fixed, and which was first signalised by Dr. Jackson, of Boston, in the wards of M. Louis, who has twice amply confirmed its value as an additional aid in diagnosis. We refer to the study of the *expiration*. In health this is scarcely and sometimes not at all sensible, and never seems to occupy the seat of inspiration, but is evidently at a distance from the surface, in the larger bronchi, and very feeble. But when the density of the lung is increased, the expiration becomes gradually more and more distinct and superficial, till it resembles a *second inspiration*, and frequently is alone

a mucous, sonorous, or crepitating ronchus is occasionally heard, which is either confined to this region, or extends a very short distance beyond it: so that, the alterations in the respiration and percussion, like the development of tubercles, take place from the summit to the base of chest, and are confirmative of the diagnosis founded on the previous symptoms.

276. When we therefore meet in the same individual, the *dry cough* which has existed a variable space of time, and in many instances come on without apparent cause, accompanied with *clear mucilaginous expectoration*, *pains* in the sides of chest or in the back, *hæmoptysis* from the commencement or during the progress of the cough, *dulness of sound under one or both clavicles*, diminution or any other alteration of the respiratory murmur in the same point, while the remainder of the lungs is healthy, *we may be certain of the presence of unsoftened tubercles.* The dyspnœa, the loss of appetite, the emaciation, the sensibility to cold, &c. which are present in this first period, *assist* our diagnosis, but could not, independently of the preceding symptoms, confirm it.

277. Many of our observations (*Obs.* 10, 35, &c.), and among others the following, are illustrative of what we advance.

Observation XI.

A bookbinder, aged 16, tall, habitually thin, entered the hospital of La Charité, 23d of March, 1825. Hair black; skin fresh coloured; not subject to sickness of any kind, or

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heard; without accurate comparative examination, it might easily, and no doubt often has been mistaken, for the *inspiratory* murmur. What renders this sign peculiarly valuable, is, that the change in the *expiration* precedes that of the *inspiration*, and consequently the modification is principally applicable to the early periods of the disease, where correct diagnosis is so important. I have frequently seen M. Louis, from this symptom alone, decide on the existence of induration of the lung, when it could neither be detected by percussion or modified inspiration. Dr. Jackson has also proposed a plessimeter of *India-rubber*, which, from its yielding no sound of its own, and protecting the patient from the pain which the use of the finger or a hard substance often occasions, possesses decided advantages. M. Louis agrees fully in its utility and efficiency; the piece employed should be about a quarter of an inch thick and an inch square. (Translator.)

cold. He dated his present illness fifteen days; he had experienced from the commencement, without any apparent cause, great lassitude, with violent rigors, and a cough accompanied by clear expectoration. These symptoms had continued; pains in the precordial region were excited by cough, and on the eighth day, he expectorated a little blood. Bowels costive; thirst not urgent; very little appetite. The general weakness had much increased.

March 25.—Expression rather animated; considerable debility; he had walked with difficulty to the hospital. Cough usually dry, rarely accompanied with a clear, mucous, spumous expectoration; it no longer excited pain in precordial region. Percussion of left side natural, but rather dull for two inches under the right clavicle, where there was a slight crepitating ronchus. Respiration rather confused posteriorly in the corresponding point, but elsewhere natural. No dyspnœa; but he cannot repeat many words without drawing his breath. Pulse 106, regular; heat of skin natural in the morning, elevated towards noon, and accompanied with perspiration at night. Tongue very moist, natural on edges, yellowish in the centre; very little appetite; thirst moderate; abdomen sluggish; three liquid stools without pain the previous evening. The patient is quite tranquil, and attitude in bed is natural. (Infusion of violets; mucilaginous mixture—V. S. of ℥viij. diet.)

The disease continued to progress, and up to the 31st of May, day of his death, the following is the result of our observations. He coughed very little during the first month, but rather more frequently afterwards; the expectoration was so scanty that it was generally dried up in the spitting vessel. There were occasionally flying pains in the left or right side of chest.

During the latter part of May, the breathing was always somewhat oppressed. On the 29th of March there was considerable resonance of voice under the right clavicle. On the 8th of April the respiration in the same region was almost cavernous, both anteriorly and posteriorly, and accompanied by a gurgling ronchus, which was succeeded by coarse crepitation two inches below the clavicle; this ronchus extended to a very short distance. On the left side the respiration appeared natural, except superiorly and posteriorly, where there was an occasional crackling sound. On the 13th, great resonance of voice under both clavicles. On the 28th, pectoriloquy was evident in every direction round the summit of right lung; it was doubtful on the left side. No other evident change occurred before death.

From the 29th of March, the percussion under right clavicle became gradually duller. The heat of skin was considerable in the evening, night perspirations almost constant, and not preceded by rigors. On the 25th, pulse 85; it was shortly afterwards 100; and from the 15th of May, it was 120.

Very little thirst; appetite always feeble. The food consisted of some rice creams, with sometimes an egg. Bilious vomitings took place on the 11th and 12th May, and were not renewed; epigastrium always indolent; stools scanty, and rather fluid.

26th May.—Œdematous state of left cheek, hand, and forearm; this gradually increased. On the morning of the 30th, the countenance was changed; there was an expression of terror, no doubt to be attributed to the extreme dyspnœa which then existed. Death took place at 3 o'clock the next day, preceded by very slight delirium.

Sectio Twenty-nine Hours after Death.

Exterior.—Slight œdema of lower extremities, also of the fore-arm, and face of left side; no rigidity of limbs. The head was not examined.

Neck.—Mucous membrane of epiglottis of a pink colour, without other alteration. A superficial ulceration at the convergence of the vocal cords. Trachea of a bright red colour throughout, with numerous small oval ulcerations, of about a line in breadth, as if portions of the membrane had been artificially removed; the latter was elsewhere of natural consistence and thickness.

Chest.—Some long and dense adhesions on the summit of both lungs, especially on the right side. About half a pint of clear serum in each pleura. The whole of the upper right lobe was of considerable density, presenting at its summit tuberculous excavations communicating with the bronchi, and none of them larger than a small nut. Their parietes were not lined by false membrane, but formed by a semi-opaque substance, of a greyish and greenish aspect; tolerably firm, not granulated, and yielding by pressure a similarly coloured fluid. This indurated mass presented various small excavations, and numerous irregularly defined tubercles. These last existed, without excavations, in the upper part of lower lobe, the base of which was slightly congested, and contained some semi-transparent granulations. Similar, but less extensive lesions in the left lung. Bronchi of right side redder than on the left; they were slightly ulcerated. Heart and aorta healthy.

Abdomen.—A pint and a half of limpid rust coloured serum in the peritoneal cavity. Œsophagus healthy, except for about an inch at its cardiac extremity, where it was much thinned, and easily torn; internally it had a bluish tint, and its thinned mucous membrane was wanting over a space of half an inch. The stomach, which was rather voluminous, and containing a small quantity of turbid fluid, presented internally a similar tint to the œsophagus over its upper portion and great cul de sac, in a continuous surface about equal to the palm of the hand; the same colour reached to within two inches of the pylorus, in bands of three or four lines wide, and as many inches long. The corresponding mucous membrane was extremely thin, and soft as mucus; rather viscous and opaline; here and there it was destroyed. In the intervals of the coloured portion it was a little softened, but of natural tint. Duodenum sound. Mucous membrane of small intestine slightly softened, and presented about forty small ulcerations, from two to three lines in surface, and almost all in the agminated glands. Their lining was formed by the sub-mucous layer, slightly thickened. The mucous membrane of large intestine was in contact with pulpy yellowish fæces. It was everywhere softened, and especially so in the cœcum, where it was not more consistent than mucus; it offered numerous ulcerations, from half an inch in surface and upwards, both in the cœcum, ascending and descending colon. Their edges were prominent, their bottom blackish, and formed by the slightly thickened sub-mucous layer. Many of the mesenteric glands nearly equally scattered through the mesentery, were nodulated, increased in volume, reddish coloured, and in part tuberculous. The other organs healthy. The bile of gall bladder very dark coloured and viscous.

This observation is one of those which speaks most strongly in favour of auscultation and percussion. At our first examination of the patient, on the seventeenth day of the disease, he might have been considered labouring under simple catarrh. But the absence of all apparent causes, and the slight hæmoptysis which had occurred on the eighth day, having induced us carefully to examine the chest, we found that the respiratory murmur below the right clavicle was feeble and mingled with a crepitating ronchus confined to this region; that the percussion was also duller than elsewhere; and from these symptoms we did not hesitate to consider the patient as phthisical, although his general health, and the short time which had elapsed from the commencement of the affection, appeared little favourable to such a diagnosis. It was, however, soon confirmed by the progress of the symptoms; and, if we recollect the mode of tubercular development, it will be granted that our diagnosis was both rational and easy. Not, however, to distract the attention from the principal object of this chapter, we shall content ourselves by remarking, that the softened state and diminished thickness, with partial destruction of the gastric mucous membrane, were *latent;* that bilious vomiting only occurred during two days, which of itself was insufficient to characterize the lesion which existed; the same remark may be made for the œsophagus.

278. *Second Stage of Phthisis.*—The *sputa*, which become denser towards the close of the first stage, are greenish, and marked with dull white lines on their surface, at the commencement of the second. They have not yet any definite form, but they soon become thicker, rounded, and often ragged (lacérés) in their circumference, characters which are peculiar to phthisis.—(226). The *thoracic pains*, if previously existing, are sometimes more intense. *Hæmoptysis* is pretty frequent; so that among the *local* symptoms, the sputa are alone peculiar to this period of the disease.

279. The results of *percussion* are not less decisive than before. In fact, we have seen that, in one-third of the cases, the upper lobe of one or both lungs was entirely converted into tubercles, grey substance, and into excavations successively smaller from the summit to the base. When this was the case, the corresponding part of chest was dull on percussion, while it was clear everywhere else. This state of things, of itself,

and without other investigation, would almost be sufficient to characterize phthisis.

280. At the same time that the sputa become striated and denser, the respiratory murmur is strong, coarse, or even cavernous, under the clavicles. To this is frequently conjoined either a crepitating ronchus (resembling the sound produced by bending dry basket-work, or a dry piece of leather), or the true cavernous ronchus. The voice soon becomes resonant, and this is shortly replaced by pectoriloquy. The space in which these different changes take place is at first limited, but it daily increases; and in some instances, where the whole of the upper lobe is converted into numerous excavations, the respiration is coarse, and more or less tracheal throughout its whole extent. The cavernous and other ronchi are also present, but their characters, as well as those of the respiration, change as we recede from the clavicle, thus coinciding with the successive development of tubercles, and their evacuation when softened. The pectoriloquy becomes daily more distinct.

281. These shades of difference in the characters of the ronchi and cavernous respiration, which take place from *the summit to the base of lung*, are most important for the accuracy of our diagnosis. They must fix our attention, as well as the local symptoms we have described; for, although pectoriloquy and cavernous respiration prove the existence of an excavation, they do not indicate *its nature*; and if we at once concluded, from the mere existence of these symptoms, that the case was *phthisis*, we should, at least occasionally, be led into error, as the following observation will prove.

Observation XII.

An exciseman, aged 59, of middle height, feeble constitution, had been subject to shortness of breath from childhood, considerably increased the last ten years, since when he has been labouring under bronchitis. This was less intense during the summer, was increased in the winter, and then accompanied by emaciation. For the last six months, gradual diminution of both cough and appetite; but, one month before entering the hospital, the anorexia had been complete, the cough had become more troublesome, and the debility more considerable; he had entirely ceased his occupations. Had never complained of pains in chest, and never had hæmoptysis. 30th November, 1824, the day after his admission—face pale; lower extremities slightly infiltrated; walks slowly, and with difficulty; cough moderate; expectoration opaque, greenish, not striated; respiration almost cavernous, and with a coarse crepitating ronchus under right clavicle, and posteriorly in the corresponding point; great resonance of voice, and indistinct pectoriloquy in the same region; chest everywhere clear on percussion; pulse very little quicker than natural; tongue clean on edges, brown in the centre; thirst urgent; anorexia; abdomen voluminous, and obscure fluctuation could be detected. Diarrhœa and night sweats the last fifteen days. (Infusion of rice and the triticum repens for drink; diascordium; frictions, with the tincture of digitalis; two rice creams).

Up to the 19th November, when death took place, he gradually became weaker; the dyspnœa increased, and for the last six days the expectoration resembled a greenish coloured pea-soup; no change in auscultation on the right side. On the 7th, a mucous ronchus, mingled with a gurgling sound, was heard under the left clavicle; posteriorly and superiorly the respiratory murmur was very strong, as well as the resonance of the voice; there was a loud sonorous ronchus throughout the whole of chest during the last four days; the pulse became very frequent.

Complete anorexia; nausea, succeeded by vomitings, with a dry tongue. On the 10th, copious diarrhœa came on, and from fifteen to twenty stools were passed daily until death. Stupor was almost constant the last four days, and he expired at 7, p. m.

Sectio Thirty-seven Hours after Death.

Exterior.—Slight œdema of lower extremities.

Head.—Close adherence of dura mater to sagittal suture, slight sub-arachnoidein infiltration; cortical substance rather pink; the medullary was slightly injected; a spoonful of clear fluid in each lateral ventricle; rather less in the inferior occipital fossæ.

Neck.—Epiglottis and larynx natural; mucous membrane of trachea red throughout, especially inferiorly; no other alteration.

Chest.—Numerous cellular adhesions over the whole of both lungs. The summit of the right lung, to the extent of two inches, seemed formed by numerous cysts, varying in size from that of a pea to a large nut. These apparent cysts were formed by dilated bronchi, containing a reddish mucous fluid, or a yellowish opaque substance of variable consistence. They were closely compacted together, and formed by a thin mucous membrane, resembling that of colon; rather red, resisting, and continuous with that of the bronchi, which appeared natural. The same lesion existed in the summit of left lung, but occupied a less extent; and the dilatation of bronchi was less considerable. There were neither tubercles or tuberculous matter in any portion of the lungs. The right was slightly congested, but, with the exception of the alterations described, healthy; the heart was small; the aorta presented throughout its whole length some prominent yellowish spots.

Abdomen.—About three pints of clear fluid in the abdominal cavity; stomach small; the mucous membrane of a greyish colour near the pylorus; punctated with red spots everywhere else; in some points it was thin and extremely soft, only capable of being detached in fragments of one to two lines long; small intestine contracted, twice its usual thickness, and very short; its lining membrane as soft as mucus; that of the colon was thickened throughout, extremely softened in the sigmoid flexure, and everywhere rather less resisting than natural; liver adhered to the diaphragm; structure healthy; gall bladder not larger than a filbert; contained two very dark, soft, nodulated concretions, enveloped in mucus; its parietes exceeded half a line in thickness, principally owing to the mucous membrane; the sub-mucous layer indurated; cystic duct natural.

282. When we first saw the patient, we considered him labouring under some organic abdominal affection and an extremely chronic phthisis, which had only caused very limited disorganization. The clearness of percussion under the clavicles at first inspired us with doubts; but auscultation indicating the existence of an excavation in the same point, we could not avoid supposing it the result of suppurated tubercles; a supposition apparently confirmed by the cough, dyspnœa, expectoration, and more especially by the part of chest in which the excavation was situated. We were mistaken in our conjec-

tures, and perhaps should be again so, were a similar fact to be presented to us. However, let us remark, that there were neither hæmoptysis, pains in the chest, or striated expectoration; from all which we may conclude, that the existence of *pectoriloquy in a very limited space*, in an individual affected *with chronic bronchitis*, and when the expectoration is opaque, greenish, purulent, and nummulated, is not sufficient to determine the existence of tubercles; to do this with certainty, either hæmoptysis, pains in the chest, or diminished sound on percussion round the excavation, must be present at the same time.

283. No doubt similar facts are rare; and indeed years may elapse without encountering a second; but we must not, on that account, neglect it, since it is a striking proof of the *difficulty* of *diagnosis* in circumstances apparently the most favourable, and of the importance of some local symptoms, especially of percussion. It was in fact more than probable, as we at first suspected, that a tuberculous affection of ten years duration would have terminated in some induration of the lung, and produced corresponding results from percussion.*

284. Pectoriloquy did not always exist opposite excavations, when there was even free communication with the larger bronchi. Occasionally also the resonance of the voice was not very distinct, but usually, at the same time, there were cavernous ronchus and tracheal respiration: so that when these two symptoms were present, particularly if beneath the clavicles, they are equivalent in value to pectoriloquy, in the diagnosis of an excavation.

285. To the preceding symptoms were conjoined in some cases, metallic tinkling. This peculiar sound, which we have heard in three instances (*Obs.* 1), announces, as M. Laennec has said, a large tuberculous excavation, filled with air and fluid, and communicating with the bronchi. It also exists after perforation of the lung by the emptying of a softened tubercle into the pleural cavity (424, &c.); but the distinction between these two cases is easy: for, when the sound occurs in a tuber-

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* We are aware of the truth of M. Laennec's observation, that the induration round tuberculous cavities does not *always* cause *dulness on percussion;* but for this to be the case the excavation must be *very extensive.*—(*Obs.* 1, 28.) (Author.)

culous excavation, it is associated with pectoriloquy and cavernous respiration, both of which are absent when this is not the case. We shall not insist on the *general* symptoms, which are *never sufficient for the diagnosis of local disease*, but we shall observe, that those which indicate ulcerations of the *epiglottis* and *larynx*, are not without value; since, from our researches in the first part of this work (60), these lesions appear *peculiar to phthisis.**

[We have already directed the reader's attention to the study of the *expiration*, as an additional means of detecting an alteration in the density of the lung, and insisted upon its importance as peculiarly applicable to the earlier periods of tubercular deposition. The difference in the seat of *simple bronchitis* and of that which is complicated with pulmonary tubercles, is a fact not less remarkable than important, in aiding our diagnosis of phthisis, and has never yet received that attention which, judging from the evidence of M. Louis, it undoubtedly deserves. He has *invariably* found, that the sibilant, mucous and submucous râles, resulting from simple catarrh, originate in the *lower part of the chest*, while bronchitis complicated with pulmonary tubercles, is always situated in the *upper lobes*. Simple bronchitis usually attacks *both* sides of the chest, while the ronchus from tubercles is *at first* almost constantly confined to the upper lobe of one side. In the eruptive diseases, continued fever, and emphysema, the seat of the bronchial inflammation is constantly in the lower lobe; and during the last three years, out of more than 140 cases, M. Louis has not met with *a single example* in contradiction with the above statement. When bronchitis is universal, of course these distinctions are not available, unless we have been enabled to follow its gradual progress. Of the immense importance of this law, there can only be one opinion; and in many instances attention to the seat of bronchitis would dissipate much doubt and anxiety, and early indicate the real nature of an affection which, without the knowledge of this fact, would frequently be confounded with simple catarrh, and thus frustrate the hopes both of the patient and practitioner.

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* Mr. Bedingfield remarks, in his valuable *Compendium of Medical Practice*, that every case of ulcerated larynx and trachea which had fallen under his observation terminated fatally; and, with the exception of two instances, depending upon syphilis, Dr. Armstrong was equally unsuccessful. These results are confirmative of the author's conclusion as to the dependence of this lesion on the tubercles in the lungs. (Translator.)

There are some rare instances of chronic bronchitis with dilatation of the bronchi in the upper lobes (*Obs.* 11), which might easily, judging simply from some local symptoms, such as pectoriloquy and gargouillement, be mistaken for tuberculous excavations. Under these circumstances, we must carefully inquire into the history of the case, the duration of the symptoms, their being limited to one side of the chest, the absence of fever, and the preceding characters of the bronchial affections to which the patient has been liable. The presence also of hæmoptysis, pains, and especially the condition of the digestive tube, would perhaps always enable us to arrive at some satisfactory distinguishing characters between these two affections. Percussion also would assist, for around chronic tuberculous excavations, more or less sensible induration of the lung would have occurred; and this is not usually the case for dilated bronchi. In those instances, where the size of the tubercular cavity renders percussion clear, notwithstanding the partial induration, it would be scarcely possible to confound the acoustic phenomena with those arising from dilated bronchi.

The situation and character of *pneumonia* may also aid our diagnosis of tubercles. In the great majority of cases among young subjects, it is seated in the *lower lobe*, and is usually confined to *one side* of the chest; while in persons above fifty, M. Louis has found that the *upper lobe* is more frequently affected. An attack of *double* pneumonia in the upper lobes is a very probable indication of tubercles. These remarks are not applicable to the pneumonia which so often occurs towards the close of life; it then not unfrequently occupies both sides of the chest.

It may be worth observing, that in measles the *expectoration* is often nummulated and flocculent, as in the second stage of phthisis. We may also again advert to the fact, that the existence of *chronic peritonitis* is sufficient to justify the diagnosis of *pulmonary tubercles*, though no general symptoms may have directed our attention to the lungs. In the chapters on latent and acute phthisis, the reader will be enabled to appreciate some of those numerous difficulties which often interfere with the diagnosis of phthisis, and at the same time be convinced how variable are the symptoms, and incalculable the progress of this affection. The absence of cough and expectoration at a time when tubercular *cavities* are present in the lung, the violence of the *general symptoms* while the lesion of the pulmonary organs is barely to be detected by the most careful examination, are facts never to be lost sight of, and highly calculated to prevent hasty conclusions respecting the presence or absence of a disease, which, while rarely or ever destitute of some *local* characteristics, is often so protean in its general manifestations. The student's attention is too apt to be directed to the signs of phthisis in its advanced stage, such as pectoriloquy, purulent expectoration, &c. &c.; but, these prominent symptoms are certainly of secondary interest, to those numerous and earlier indications gathered from an accurate history of the case, from a correct investigation of the succession of the symptoms, and from the knowledge of their individual value. The appreciation of the nicer shades of auscultation and percussion can only be acquired by long and persevering practice; but the affirmative and negative value of the evidence, which this means of examination affords, will amply repay the time and trouble expended in obtaining the necessary skill for its acquirement. It is far more practically useful to detect the first indications of tubercular deposition, than accurately to describe the varying and curious acoustic phenomena resulting from an excavation in the lungs; far more useful to be able rightly to interpret the value of the white frothy expectoration, than to multiply experiments for the purpose of discovering the presence of pus. Let it be remembered, that there is no one symptom which constitutes a disease, nor any one phenomenon which is invariably present; our diagnosis to be correct, must be deduced from *all* the symptoms which are submitted to our notice, and their just estimation, founded upon an accurate knowledge of the pathology of the affection.

The habit of mingling the description of all the accessory symptoms, with those which are the fundamental signs, has been most injurious to the progress of diagnosis, and in the indiscriminate enumeration of every possible variation which may be noticed in the progress and symptoms of any disease when associated with individual peculiarities, the essential and leading features are too apt to be overlooked, and no definite or satisfactory information conveyed to the mind. The uncertainty almost constantly attending the just appreciation of particular symptoms, which we well know *may* depend on very different and opposite causes, gives great additional value to every increase of our facilities for the *physical* examination of our organs. The results which this method of investigation affords, are not exposed to the same liability to error, and though frequently incapable of affording any elucidation as to the nature or seat of particular diseases, they *always* possess a *negative* value of no small importance to the practitioner, both as to prognosis and treatment. Let the student also recollect that he cannot be *too minute* in his inquiries:—accurate diagnosis is founded upon minutiæ, and it is only by multiplying our points of recognition, that we can trace with any certainty the ever-varying features of disease. We at the same time improve our own sagacity, and acquire that perspicuity in description by which our observations become available to others: the mind no longer rests satisfied with some shadowy and uncertain conclusions, but by patient and minute investigation seeks to combine and rationalize the often complicated materials from which remedial indications are to emanate. The want of correct diagnosis has been peculiarly evident on the subject of phthisis, and has rendered useless a vast mass of information on the therapeutics of this disease, because, in many cases, the existence of the disease itself may be questioned. At no period of medicine has diagnosis been so generally or successfully studied as at present, but at the same time we feel that it is far from being cultivated so extensively as it deserves, and we sincerely trust that the younger branches of the profession will make it still more an object of their special study and devotion.]—(Translator.)

CHAPTER III.

PNEUMONIA AND PLEURISY OCCURRING SHORTLY BEFORE DEATH.

286. When *pneumonia* was very limited, no symptom indicated its existence; but when more extensive, five-eighths of the patients complained of pain in one side of the chest, three, four, or five days before death: at the same time the respiratory murmur was weak, mingled with a fine crepitation, and percussion was more or less dull in the corresponding point. The expectoration became sometimes viscous, without however presenting any other of the characters usual in this affection. When under other circumstances, these symptoms are, however, sufficient to define the nature of the complication, and the time of its invasion; they also prove that pneumonia may happen in phthisical patients when emaciation is extreme, and that the existence of complications with great debility, is not an insuperable obstacle to the diagnosis of accidental intercurrent diseases.

287. *Pleurisy*, developed under the same circumstances, also gives rise to symptoms by which it may be detected. Seven out of eleven patients were examples of this complication, and they had all experienced exacerbation of the dyspnœa, acute pains in one side of thorax, three, nine, eleven, or seventeen days before death. In three among these there was increase of heat and thirst, and the pulse was accelerated. Œgophony was present in two, and would no doubt have been more frequently detected, had complete examination been possible. In cases of extreme weakness, the necessary exertion to effect this might not be free from danger. The symptoms then were sufficiently marked to enable us to form a diagnosis, and to prove the affection existed only a few days before death.

288. If pneumonia, coming on in the last period of phthisis, is rapid in its progress and accelerates the fatal termination, this is not the case in an earlier stage of the complaint, when the patients are enabled to continue their avocations, and where debility and emaciation have made little progress. *Pneumonia is then in fact, almost invariably curable*, though associated

with tuberculous excavations.* We cannot come to the same conclusion for pleurisy, when coming on in the course of phthisis; for, with one exception, we have *never* seen it entirely disappear, not even when occurring before tuberculous softening had taken place. The symptoms might often be *palliated*, the effusion in part dissipated, but it was never wholly absorbed, and after a variable period of time, the patients died, having in addition to the tubercles in the lungs, false membranes and effusion in one or both sides of chest.

CHAPTER IV.

SYMPTOMS OF ULCERATIONS OF THE EPIGLOTTIS, LARYNX, AND TRACHEA.

§ 1.—*Symptoms of Ulcerations of the Epiglottis.*

289. Out of eighteen observations where we have observed this alteration, in six there were no ulcerations either of larynx or trachea. Four among them complained of a variably intense pain in the upper part of thyroid cartilage, or between this and the os hyoides. The pain was compared to that of a raw sore, or to prickings, or to a sense of burning. It was present a month, two months, or only a few days before death. In three instances there was dysphagia, although no alteration existed in pharynx or tonsils: liquids were sometimes returned by the nose. Out of twelve patients who had ulcerations in the epiglottis, larynx, and trachea, in four, deglutition was difficult, and pain was complained of in the same region. Only one among them, during a certain time, rejected liquids by the nose.

290. Thus the symptoms of ulceration of the epiglottis became evident from a detail of the facts, viz. a fixed pain in the upper portion of or immediately above the thyroid cartilage, with some difficulty in swallowing and the return of liquids by the nose, while the pharynx and tonsils remain

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* M. Andral makes the same remark. (Author.)

healthy. These symptoms are confirmed by what we observe in ulcerations of the larynx, for in this case, there is neither return of liquids by the nose or difficulty in deglutition, so long as the pharynx and epiglottis are not affected. Perhaps in the absence of the symptoms peculiar to ulceration of the larynx, a fixed pain at the upper part of the thyroid cartilage would sufficiently indicate those of the epiglottis. At least this would appear to be the case from the following observation, where pain was almost the only symptom observed.

OBSERVATION XIII.

A tailor, aged 40, of weak constitution, born of healthy parents, who died at an advanced age, entered the hospital of La Charité on the 18th of October, 1824. He had never been seriously ill, and was not liable to colds; said his present indisposition had lasted fifteen months, and that he had coughed from the commencement; had not expectorated during the first two months, after which the expectoration was more or less abundant and soon accompanied with dyspnœa. Some acute pains were felt in one side of the chest, three months subsequently to the first symptoms; they continued fifteen days, recurring afterwards at two different periods, but of shorter duration. For the last fortnight there had been slight soreness of throat, hoarseness, and dysphagia; had had occasional perspirations, but no rigors; the appetite had gradually diminished. The diarrhœa had been almost constant the last six months, with occasional colic; it was less violent after the first two months. The emaciation and weakness dated from the commencement of the expectoration. Had relinquished his occupations for six months, and been confined to bed the two last. October 19.—Face pale and thin; pain and pricking sensation at the upper part of thyroid cartilage; sense of dryness in the same region; slight difficulty in deglutition, though the pharynx and amygdalæ were natural; no peculiar feeling in the course of the trachea; cough pretty frequent; expectoration copious, semi-opaque; slight dulness of sound under both clavicles, particularly to the right, where it occupied almost the whole of the space corresponding to the upper lobe. Cavernous respiration and resonance of the voice, without pectoriloquy, under both clavicles, but more evident under the right. Pulse 90; great sensibility to cold. Appetite much diminished; little thirst; epigastrium indolent; six liquid stools with very slight pain the last twenty-four hours.—(℞ Infusion of rice with quince syrup; diascordium with gr. j. of opium; three rice creams.)

On the following days, the expectoration became opaque and of a dirty colour, pain of throat continued, and the appetite quite failed.

November 7.—Considerable increase of diarrhœa; tongue natural; pain in the thyroid cartilage as before; deglutition of saliva very difficult; no alteration of voice; complained of no uneasiness in the course of the trachea; slight acceleration of pulse. No change took place the two following days. On the 10th of November, at 5, a. m., loss of consciousness, and at the visit we found him lying on the right side, the pupils contracted, the eyelids half closed, breathing accelerated, pulse slow, all the movements extremely feeble, and complete insensibility. No change occurred before death, which took place at 12, a. m.

Sectio Twenty-two Hours after Death.

Exterior.—Extreme emaciation.

Head.—Three small spoonsful of reddish slightly turbid fluid on the upper surface of arachnoid. Some layers of blood on the inner surface of dura mater, easily removed, and not adherent by false membranes. A tolerable consistent infiltration beneath the arachnoid. Half a spoonful of fluid in each lateral ventricle, rather more in the inferior occipital fossæ. Brain slightly softened and injected.

Neck.—Œdema of the glottis, of a line and a half thick near the arytænoid cartilages, less elsewhere. Mucous membrane of epiglottis more or less red, presenting some ulcerations on its lingual surface; it was of the same colour, with an unusually shining appearance, and also accompanied with ulcerations on its laryngeal surface. The fibro-cartilage was denuded at the bottom of one of these, and superiorly on the right side, it was completely destroyed to the extent of two lines. Larynx natural; mucous membrane of trachea red inferiorly.

Thorax.—The left lung presented some cellular adhesions superiorly and posteriorly. The right was universally adherent, and at its upper portion the false membrane was semi-cartilaginous. In the summit of upper lobe there was a vast anfractuous excavation, as large as the patient's closed hand It was almost filled by a red and turbid fluid, traversed by thin cord-like prolongations, and partially lined by fragments of a soft false membrane. Its parietes were two lines thick posteriorly, still thicker anteriorly, and were formed by a dark greyish substance, more or less firm, and in some points semi-transparent. The remainder of the lobe was dense, converted into the grey semi-transparent matter, into tubercles, or into partially filled cavities. There were also in the upper part of the two other lobes, some unsoftened tubercles, and the grey semi-transparent substance. The same lesions existed on the left side, but were less extensive. The contents of the right bronchi were analogous to those of the large excavations. The mucous membrane was redder at the summit than at the base of the lung. Heart was small; the aorta presented throughout its whole extent numerous yellow coloured patches.

Abdomen.—Two pints of clear serosity in the peritoneal cavity. Stomach contracted, enclosing a large quantity of very viscid mucus. Its lining membrane formed numerous folds, was everywhere rather red, and of normal consistence and thickness. The small intestine was extremely contracted, allowing the enterôtome to pass with difficulty, and containing much grey coloured mucus. Its mucous membrane was sound, with the exception of some small tuberculous granulations. ulcerated or entire, which existed in the lower fourth, either on the glandular patches or in their intervals. The large intestine was filled with a turbid greyish coloured offensive fluid. From the cœcal valve downwards, its muscular coat was denuded for a foot and a half, with the exception of a belt of sound mucous membrane of about an inch in breadth. Thus denuded, it was greyish coloured, firm, about a line thick, with here and there fragments of mucous membrane and cellular tissue on the point of being detached. Lower down there were four ulcerations of an inch and a half in diameter, where the exposed muscular layer was half a line thick. The mucous membrane was very pale and exceedingly soft in the sigmoid flexure and rectum. The right meso-colic glands were rounded, of the size of a large pea, greyish coloured, shining, opaque, but not tuberculated; those of the mesentery were natural; liver of ordinary volume, firmer than usual; gall bladder greatly distended by a clear reddish coloured bile. The other viscera were healthy.

291. We shall not extend our reflections on this observation, where so marked a correspondence existed between the symptoms and the morbid changes observed after death. The ulcerations of the epiglottis exactly coincided with the spot where the patient complained of pain, and also explained the slight difficulty in swallowing. The cavernous respiration and the resonance of the voice were in proportion to the extent of the excavations. The state of percussion announced the presence of much grey and tuberculous matter. The lesions of the large intestine could scarcely be more extensive after long and copious diarrhœa. Lastly, if the gastric mucous membrane was perfectly sound, with the exception of being slightly red, the patient never had either nausea, vomiting, or epigastric pains.

Let us observe, that this is the only instance in phthisical patients, where we have found ulcerations on the lingual surface of the epiglottis, and where the lymphatic glands of one of the meso-colons, were transformed into cancerous matter. We have already made the same remark for the mesenteric glands.—(*Obs.* 4.)

292. The following case is an example of the complete destruction of the epiglottis, and confirms what has been said respecting the peculiar symptoms attending the ulcerations of this organ.

OBSERVATION XIV.

A gardener, aged 33, tall, of a lymphatic and sanguineous temperament, of strong constitution and well made, entered the hospital of La Charité, 6th of September, 1824. Five years previously he was attacked with pneumonia, and after convalescence, his breathing was not at all affected; long before this he was subject to hoarseness coming on in the winter; said that he had been now ill a year, and had ceased his occupations six years. At the commencement he was attacked with cough, irregular rigors, and expectorated a fluid like frothy saliva. The cough had since continued, the expectoration had become less clear and more copious the last four months; he had been always very sensible to cold, a slight decrease of temperature occasioning shiverings; for six months, night perspirations had been constant, and increased heat of surface. The voice had become affected during the three last months, and the upper part of larynx was the seat of more or less acute pain; liquids were returned by the nose during the last five weeks. Diminution of appetite from the first; of late the digestion had become languid, and there was occasional vomiting with the cough. No uneasy sensation in epigastrium, no pain of side, no hæmoptysis; gradual emaciation the last three months.

September 7.—Face rather pale; weakness not extreme; sleep interrupted by cough; hoarseness, with great inequality and discordance of voice. A constant lancinating pain between the thyroid cartilage and os hyoides, accompanied with sense of heat and dryness; the pain was increased by cough, by speaking, by the flexion of neck forwards, and by deglutition; the latter was frequently difficult and provoked the rejection of liquids by the nose. Cough frequent; dyspnœa urgent during the night; some scanty opaque, yellowish and greenish sputa, floating on the surface of a copious clear fluid, or sunk at the bottom. Percussion anteriorly on both sides clear; pressure under the left clavicle was painful, and the respiration cavernous; under the right the respiratory murmur was rather stronger than natural; there was great resonance of voice and bronchial respiration between the clavicles. Pulse moderately accelerated; heat natural; tongue and pharynx presented no alteration; epigastrium indolent. In the evening the patient passed one stool of good consistence, and only complained of the pain in his throat.—(℞ Gum mixture; two rice creams.)

Some slight amendment the following days, and on the 17th was only sensible of the pain in neck, when coughing, speaking, or swallowing; no change in the expectoration; respiration was cavernous, and there was pectoriloquy under the right clavicle, and posteriorly in the corresponding point; little appetite; stools liquid or pulpy, and not numerous.

Oct. 4.—Increase of pain; deglutition of solids very difficult; liquids were returned by the nose; increased appetite; this state continued for some days. On the 12th, liquids could alone be swallowed; the pharynx and tonsils were unaffected; the expectoration presented the same characters, and seemed occasionally to be detached immediately from the larynx; no change in auscultation; pulse rather quick; night perspirations copious; one or more evacuations daily, of natural consistence. (Twelve leeches to neck). The pain persisted; some slight decrease of burning sensation in larynx; aphonia constant; the expectoration was opaque and greenish; diarrhœa came on, and continued uninterruptedly from the 15th to the 31st, when death took place. The appetite had totally ceased, the epigastrium had become painful on pressure, and pulsating pains were complained of in the same region; tongue was always natural.

Sectio Twenty-nine Hours after Death.

Exterior.—Emaciation almost extreme.

Head.—The dura mater presented on both sides some lacerations through which the arachnoidien granulations were apparent; pia mater injected; easily torn; cerebral substance normal. There was a spoonful of clear fluid in lateral ventricles.

Neck.—The base of tongue and lower part of pharynx presented numerous small, and, in general, scattered ulcerations. The epiglottis, the lateral ligaments, and superior vocal cords, were completely destroyed; the lower were only partially so. The surface, where this destruction took place, was more or less red and indurated; the arytænoid cartilages were sound, with their articular surface exposed. The mucous membrane of trachea was of a light pink tinge, and in other respects healthy.

Thorax.—On opening the chest, the lungs did not collapse; the right was everywhere adherent; the left, which was entirely free, presented on its upper lobe a puckered wrinkled surface, corresponding to a small indurated mass of grey demi-transparent substance, situated about half an inch beneath the pleura, and giving off some small prolongations of the same nature. Near it was a middle sized tuberculous excavation lined by a false membrane, and some fragments of hepatized lung. There were also numerous grey semi-transparent granulations, diminishing both in number and volume, from above downwards. The right lung offered in its upper lobe a pretty large excavation, communicating with one in the lower lobe. Both contained a red, thick, opaque fluid; were invested by a dense, grey coloured, semi-transparent false membrane. There were also numerous softened tubercles, and grey granulations in the upper lobe; these last also existed in the lower; heart and aorta natural.

Abdomen.—Stomach voluminous; its mucous membrane rather red in the left extremity, grey coloured and granulated in the rest of its extent, with the exception of a limited portion of the posterior surface; it was rather firmer than natural, in the part corresponding to the grey colour; the last twelve glandular patches of the small intestine presented some ulcerations, and a few semi-cartilaginous granulations. The remainder of the lining membrane was healthy, that of the large intestine was thick and softened, but might still be detached in fragments of one or two lines in length; it was not ulcerated. The liver was voluminous and soft; the bile of gall bladder thicker than natural; spleen small, and easily broken down; no other alteration.

293. In this, as in the preceding observation, there were pains in the upper part of thyroid cartilage, or between it and the os hyoides, with difficult deglutition. But the symptoms in the present instance were much more intense, absorbed the attention of the patient, and corresponded to the extensive nature of the alteration. The pain was constant, lancinating, accompanied with a sense of heat, increased by all movements of neck, and especially by swallowing, which became daily more difficult; for a long time liquids were returned by the nose. The deglutition of solid food was the most difficult, and quite impossible during the last fifteen days. The destruction of the epiglottis and superior vocal cords was complete, while it was only partial for the inferior. The disorganization appears to have proceeded from above downwards. The affection of the epiglottis was no doubt in the commencement without complication; and probably the pain and dysphagia were at first exclusively depending upon it; the latter probably had never any other source.

294. The progress of the symptoms was slow and constant; and as we do not know whether the epiglottis is more necessary

for the deglutition of solids than fluids,* we cannot decide whether its entire destruction took place during the last fifteen days only, or at a much earlier period. The patient had never laboured under syphilis; and after the results furnished by the first part of this volume, the tendency to ulceration in phthisis is sufficiently great to render the presence of any other cause unnecessary.

295. The following observation is another very remarkable example of the lesions we are considering.

Observation XV.

A manufacturer of artificial flowers, aged 18, of rather delicate constitution, entered the hospital of La Charité, 23d December, 1824. For the last seventeen months he was convalescent from what he said was dropsy in the abdomen, but which had been treated in the commencement by the application of seventy-five leeches. He had been confined to his bed a year, without having ever experienced abdominal pains, fever, or even marked loss of appetite; his strength returned very slowly, and he had not yet completely regained his flesh; five months before entering the hospital, he was attacked with slight hæmoptysis during five successive days, which was succeeded, after an interval of seven weeks, by cough, expectoration, and difficulty of breathing, and soon after, night perspirations; no loss of appetite; stools regular; had ceased his usual occupations seven days before we saw him.

24th December.—General paleness of surface; great debility, with but slight emaciation; breathing a little oppressed; cough not frequent; expectoration clear, and rather viscous; percussion everywhere good, except for about two inches under the left clavicle, where the sound was rather dull; in the same region the respiration was loud, with sonorous ronchus, and accompanied with slight pain; a similar ronchus existed under right clavicle, but less abundant; we could nowhere detect cavernous respiration, pectoriloquy, or resonance of the voice; the pulse was accelerated; heat of skin moderate; perspirations copious and universal during the night, not preceded by rigors; tongue pale; appetite less than when in health; no increase of thirst; stools regular.—(R Pectoral infusion; mucilaginous mixture; one-fourth of full allowance.)

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* M. Magendie relates two cases of complete destruction of the epiglottis, where deglutition was not at all impeded. He thinks that, when dysphagia is present, it is to be attributed either to caries of the arytænoid cartilages, or ulcerations of the edges of the glottis preventing this opening being accurately closed at the moment of deglutition. —Vide *Précis. Elementaire de Physiologie*, p. 67, Third Edition. (Translator.)

1st January.—An acute pain complained of to the left of the os hyoides, with an intense burning sensation, which was increased by cough, external pressure, and deglutition; the latter was accomplished with difficulty, although the tonsils and pharynx were natural; the next day the dysphagia was increased, and liquids were partially ejected by the nose. From this time until death, a period of three months and a half, these symptoms continued with only slight variations; the patient could only drink by mouthfuls, and even then some drops of the fluid were returned by the nose; swallowing solids or liquids seemed equally painful, and the increased suffering caused by the attempt absorbed the patient's attention; he seldom complained of any thing else. Leeches were twice applied to the neck (on the 9th and 11th January,) without any success; a blister over the part where pain was complained of, proved equally inefficacious.

The voice became slightly altered on 5th January; on the 25th, the aphonia was complete, and continued so until death. During the last month the pain extended to the inferior portion of larynx.

There was generally considerable oppression, and for the last two months the breathing was hurried. From the 9th January, there were some isolated ragged sputa, surrounded by a clear and variably abundant fluid; on the same day, the dulness of sound occupied a greater extent, and was more evident under the left clavicle than at our first examination; there was some crepitation in the same region, and below this the respiratory murmur was indistinct; the respiration was cavernous under the right clavicle, and the air seemed to enter the stethescope when the patient spoke. Towards the end of February, the expectoration was striated. On the 4th of April many of the sputa were of a pale pink colour. On the 5th, when the patient was in the garden, a slight hæmoptysis occurred, which was easily checked.

9th January.—Pulse 85; 17th January, pulse 100. It was subsequently either faster or slower. During the last two months, the heat of surface was increased, the perspirations universal and copious, without previous rigors.

The tongue was occasionally whitish, but never red; appetite generally good; digestion easy; the diarrhœa come on about the middle of January, was almost continued, and the stools were frequent towards the end of February and in the beginning of March; some nausea occasionally from cough.

The loss of strength was rapid; yet, eight days before death, the patient was able to go alone into the garden. He very seldom appeared at all anxious.

On the evening of the 11th April, there was a marked change of expression; the respiration was more embarrassed; and soon afterwards there was loss of consciousness, which continued until 5 o'clock the next morning, when he expired.

The pectoral infusion had been replaced by rice water after the diarrhœa had commenced; diascordium, either with or without opium, was soon added to it; and while the stools continued frequent, food was limited to some rice creams; at other times he had a fourth or one-eighth of the usual house allowance.

Sectio Twenty-seven Hours after Death.

Exterior.—Extreme emaciation.

Head.—Some rather dense sub-arachnoidien infiltration; a few miliary granulations, adherent to the arachnoid, near the median fissure; a spoonful of fluid in each lateral ventricle; brain moderately firm; cortical substance of light violet colour, especially towards the base.

Neck.—The epiglottis was narrower than natural, and about one line thick near its circumference; the mucous membrane lining its inferior surface was destroyed; the subjacent cellular layer thickened, and of a light pink colour; the upper vocal cords deeply ulcerated, the lower only partially so; the arytænoid cartilages sound, and denuded at their base. For one inch below the vocal cords, the lining membrane of trachea was of a pale reddish brown colour, a little thickened, and perforated by numerous small ulcerations. Near the bifurcation, it was redder, and presented on the fleshy portion two ulcerations, from one to three lines in diameter.

Thorax.—The lungs everywhere adherent at their summit, by means of a false semi-cartilaginous membrane, from a line to a line and a half thick, and over the remainder of their surface, by a more or less dense cellular tissue. There was a very rugged excavation in the summit of left lung, as large as a goose's egg, extending to the interlobular fissure, and containing a red, thick, and turbid fluid; remnants of tuberculous matter were attached to its inner surface, which was not invested with a false membrane. Its sides were thin posteriorly, and almost entirely formed by the semi-cartilaginous false membrane we have already described, while anteriorly they were thick and indurated, being composed of a large quantity of a grey and blackish substance, more or less transparent, which was interspersed with tubercles and tuberculous excavations, and occupied the remainder of the lobe. At the upper part of the inferior lobe, there was a small unfractuous excavation, containing a similar fluid to the preceding, and some grey and yellow coloured granulations. Analogous lesions, but less extensive, existed on the right side. The bronchial mucous membrane was of a bright red, and on the left side offered some ulcerations. Heart and aorta natural.

Abdomen.—Short and dense adhesions, but easily broken, between the parietes, omentum, and intestines. Stomach of moderate dimensions; mucous membrane red and softened in the large extremity, of a greyish colour near the pylorus, white and mamillated everywhere else. Near the great curvature, and within two inches of the pylorus, there was an ulceration of six lines in diameter, the edges of which were everted and formed by the softened and red mucous membrane, while the bottom consisted of the cellular layer, which was uneven and twice its usual thickness. Duodenum natural. Small intestine contained a large quantity of mucus in its superior portions, and a turbid greyish fluid in the lower; there were numerous ulcerations throughout its whole length, but which were largest in the middle portion. The most considerable were from half an inch to an inch in surface; the majority were from two to three lines in diameter, situated near the agminated glands, dark coloured, and with flat edges, except when interrupted by tubercular granulations. The sub-mucous layer was slightly thickened, and in their intervals the mucous membrane was softened. Ulcerations existed in different portions of the great intestine, the larger of which were about two inches in surface, situated in the vicinity of the cœcum and ascending colon. The structure was similar to what we have described in the small intestine, with the exception of some grey granulations in their centre, and the absence of these in their circumference. Near the anus there were numerous ulcerations, about the size of a shilling, or rather larger. No change in the mesenteric or mesocolic glands; liver rather soft, of variable colour, from a yellowish red to a deep red; bile natural; spleen was seven inches long, by five in breadth, and very firm; its substance was of a red violet colour, of an adipous and shining aspect, and distinctly exhibiting only some vascular orifices, with a few white alternated filaments. The other viscera healthy.

296. The symptoms pointed out as peculiar to ulcerations of the epiglottis, viz. the pain above the thyroid cartilage, the difficulties of swallowing, the return of liquids by the nose, were here remarkably prominent, and enabled us to recognise the nature of the affection soon after their appearance. During three months and a half they persisted, with very slight variations, and, as in the preceding example, almost entirely engrossed the patient's attention. The change of voice was soon associated with the earlier symptoms, so that the affection of the epiglottis and larynx seem to have originated nearly at the same time.

297. In regard to the diagnosis of the pulmonary affection, we may observe, that at the period of the patient's admission into the hospital, the cough only dated three months; there was nothing characteristic in the expectoration; there was neither resonance of the voice or pectoriloquy; the emaciation was inconsiderable; in short the *general symptoms* were insufficient to indicate the disease. There was however a dull sound under one of the clavicles, or in that region where tubercles are first deposited; two months anteriorly to the cough, he had had hæmoptysis, and from these two facts we did not hesitate to consider him attacked with phthisis.

298. The everted state of the edges of the ulceration in the stomach must not escape notice; it is the *only instance* of the kind we have met. In analogous cases, the mucous membrane was, as we have already seen, distinctly perforated, pre-

serving round the edges its natural connection with the subjacent layer.

The patient had been attacked, two years and a half before his death, with a disease which he designated as abdominal dropsy; but the universal adhesions of the peritoneum proved it to be peritonitis, and the history of the treatment is in favour of this opinion.

§ 2.—*Symptoms of Ulcerated Larynx.*

299. These vary according to the part affected and the extent and depth of the ulcerations. Out of five, where the latter were confined to the junction of the vocal cords, only one had the voice affected and this from the sixtieth to the twentieth day preceding death; the aphonia afterwards became complete, and there were occasional pains in the larynx. Four others complained of slight dryness and heat in the throat a few weeks before the fatal termination. In nine cases where the ulcerations were small and superficial, situated in the ventricles, on the arytænoid cartilages, or the inferior cordæ vocales, there was hoarseness with more or less alteration of the voice, sense of heat and prickings in the larynx, and subsequent aphonia. In two of these cases these symptoms were very slightly pronounced. In three the hoarseness had commenced eight days, and in the other six or eight months, before death. The duration of the pain was equally variable. Complete aphonia only existed in two. In the eight cases where the ulcerations of the larynx were deep, and the vocal cords more or less completely destroyed, similar but much more urgent symptoms were observed. They commenced from one to five months before death. The hoarseness preceded the pain one or more weeks, and occasionally several months. The aphonia was present twenty or thirty days, two months, and sometimes at a still earlier period, before the fatal termination. The pain (and we are only speaking of cases where there was no ulceration of epiglottis) was occasionally very acute, pungent, lancinating, and accompanied with sense of heat. One of the patients compared it to the sensation of a raw surface, and the presence of some streaks of blood in the expectoration confirmed the comparison. The pain was exasperated by cough and speaking, varied in intensity, and was

sometimes absent for a few days. The cough had also a peculiar character, it was discordant (déchirée) or wheezing; the deglutition was easy, unless there was some affection of the epiglottis.

300. Whatever modifications existed in the ulcerations of the larynx, the symptoms were always of the same nature; but they varied much in intensity and duration. Hoarseness was present in four-fifths of the cases. Pain was frequently absent when the ulcerations were superficial, but if these were deep, it was continued. The same remark applies to the aphonia: we may therefore consider as symptoms of *superficial* ulcerations of the larynx, the existence of a slight pain of some continuance in this region, conjoined with a greater or less alteration of the voice; while, on the other hand, the presence of an acute, continued, and often violent pain, followed by loss of voice during one or more months, indicated the existence of *deep* ulcerations.*

§ 3.—*Symptoms of Ulcerated Trachea.*

301. However numerous these ulcerations might be, they seldom gave rise to any symptom. Only one patient, in whom the mucous membrane of the trachea was destroyed over the whole of its posterior portion, complained of a sensation of some obstruction existing just above and posterior to the sternum, which was soon followed by a slight sense of heat. Some individuals complained of pain in the larynx, although this was not ulcerated, and in the trachea the larger ulcerations were situated near the bifurcation, with only some very diminutive ones superiorly. In one case there were paroxysms of dyspnœa for several successive days; they ceased after the application of a blister to the neck. In other instances, when even the disorganization was considerable, the patients lay with the head low, and were not liable to greater dyspnœa, than when no such lesion existed.† The expectoration presented no peculiar characters; so that the only symptoms we can attribute to the

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* We have not thought it necessary to expose the individual facts, as the accuracy of our description may be deduced from those which are scattered throughout the work. (Author.)

† Paroxysms of dyspnœa have been generally enumerated among the symptoms of ulcerated trachea. (Author.)

morbid alteration we are considering, are those which were experienced by the subject of the following observation, viz. sense of obstruction, with slight heat behind the upper portion of sternum.

OBSERVATION XVI.

302. A girl, aged 23, of a lymphatic and sanguineous temperament, large proportions, robust, not liable to cold, and never having had a serious illness, had for the last six months laboured under the majority of the symptoms of phthisis. The expectoration and dyspnœa had commenced with the cough; night perspirations had existed for some time; there had been occasional diarrhœa, but no loss of appetite. *Emaciation* however had been evident from the very commencement of the *cough.* Had had no hæmoptysis or pain in chest, when, without any evident cause, she was suddenly attacked with violent shiverings, succeeded by heat, pain in the right side, and extreme dyspnœa. These symptoms continued, and on the eleventh day from their commencement, she was admitted into the hospital of La Charité, 9th Dec. 1822. 10th.—Expression animated, frontal headache; lassitude in the limbs and loins; pain between the thyroid cartilage and os hyoides; deglutition difficult; slight hoarseness; a constant acute pain in right side of chest, augmented by cough and pressure, with evidently increased local temperature. There was extreme dyspnœa; she lay with her head much elevated. Coarse bronchial respiration under the clavicles, cavernous posteriorly and laterally, in the lower half of right side, where there was œgophony and dull sound on percussion. Cough frequent, discordant, accompanied with a milky looking and slightly aerated expectoration, mingled with some opaque masses, streaked with blood; pulse 100, quick, pretty full; heat of skin moderate; tongue rather red on edges, whitish in the centre; sensation of dryness with slight redness in the pharynx; thirst moderate; anorexia; occasional nausea with cough; constipation.—(℞ V. S. ℥xij.; decoct. of triticum repens, with nitre; mucilaginous mixture; two emollient enemas.)

The bleeding was repeated on the two following days, and twenty leeches were applied to the side without success. On the 13th a blister was ordered, and on the 14th, the intensity of nearly all the symptoms was diminished; the pains in the neck and the alteration of the voice persisted.

This improvement continued on the following days: on the 3d of January no œgophony could be detected. There was evident pectoriloquy between the scapula and vertebral column on the right side; its existence to the left was doubtful. During the night she had two paroxysms of dyspnœa. A few days afterwards the œgophony was again heard. 28th Feb.—Percussion very dull under right clavicle; absence of respiratory murmur; great dyspnœa, and the patient lay with the head raised. These symptoms continued until death, which took place on the 21st March. The pulse was more or less accelerated; heat of skin variable, greatest in the evening and at night. Some irregular rigors during the day, with night perspirations, which were frequently accompanied with sudamina.

The pain between the thyroid cartilage and os hyoides was constant, though varying in intensity; the voice was always modified, and aphonia existed the last twenty days. The pharynx was slightly red and swelled; the deglutition was at first difficult, then easy, and again difficult during the last few weeks. To these symptoms, another was added on the 10th January. She complained of having experienced for some hours a sense of obstruction behind and immediately above the sternum, exciting occasional efforts to swallow; there was no sense of pricking or heat in the same region; the pain in throat had ceased. This state of things continued during several weeks, and on 7th February and following days, an acute pain was felt in the course of trachea during respiration. At the same period, some cerebral symptoms announced a fresh complication. On the 11th February, there was giddiness, headache, and for some minutes loss of consciousness. No paralysis succeeded, but the headache persisted; and on the next day the vertigo returned. 28th.—A sensation similar to that resulting from a violent bruise on the right side of face. On the 2d March, the mouth was drawn to the left, the right arm very feeble; no affection of right leg. The feebleness soon after extended to the whole of right side, and the superior and inferior extremities were successively affected by pain, numbness, and loss of temperature. Some uncomfortable prickings in right eye, followed by sense of heat; the pupil of same side, which was at first dilated, became contracted. On the 8th, while laughing with her companions, she was seized with loss of consciousness for some minutes. No sensible increase of cerebral symptoms on the following day. 16th.—Considerable prostration; paralysis of right side almost complete; tongue deviated to the same side. 19th.—Loss of speech, but she indicated her wants by gestures; delirium during the night and morning of the 20th. This continued the following night. 21st.—Alternate rigidity and spasmodic movements in the right arm, and at moments slight stiffness in the left. This continued until 4 o'clock in the evening, when tracheal ronchus came on, and death took place at midnight.

The appetite, at first good, soon almost entirely ceased. During part of February, there were pains in the epigastrium and right iliac fossa. Some nausea at considerable intervals. 7th Feb.—Tongue rather red, and covered with numerous apthous patches, which were easily removed, and were again secreted in the beginning of March. 12th.—Tongue natural; some nausea and bilious vomitings; the diarrhœa was almost constantly present, but slight, with occasional colic and tenesmus.

Emollient drinks, Sydenham's white decoction or rice water, and mustard pediluvia, were prescribed according to the symptoms. Leeches were applied to the labiæ at the commencement of the cerebral affection.

Sectio Thirty-five Hours after Death.

Exterior.—Considerable, but not extreme emaciation.

Head.—Bones of skull very thick. Beneath the arachnoid, covering the upper and middle portion of left hemisphere, over an extent of four square inches, was a membranous, yellow, concrete substance, about a line in thickness, apparently developed in the pia mater. The cerebral substance was a little soft, but not injected. There was a spoonful of serum in each lateral ventricle. The inferior half of septum lucidum was softened, pulpy, and its fragments floated in the ventricular fluid.

Neck.—Mucous membrane of the laryngeal surface of the epiglottis entirely destroyed. Superficial ulceration of the upper vocal cord of left side; that on the right was almost annihilated; the lower was less extensively affected. The lining membrane of the muscular portion of trachea was destroyed; the muscular fibres were denuded, and more or less thickened in their whole extent. Ten of the cartilaginous rings were exposed, as if the mucous membrane had been artificially removed. The remaining part was softened, and of a light pink colour.

Thorax.—Right lung adherent at its summit, by a thick membranous band; lower down, it was covered by a false membrane, about one line thick, with an undulated surface, continued over the diaphragmatic and costal pleuræ, and enclosing two pints of limpid fluid. In the upper lobe, there were two cavities nearly empty, and numerous softened tubercles. The two other lobes presented a great many grey granulations. The left lung offered several inequalities at its surface, which were caused by tubercles; there were some excavations at its summit, rather smaller than those on the right side; the lower lobe was only slightly engorged. Five to six ounces of reddish coloured fluid in the pericardium; the heart was extremely soft, of moderate volume, and of a deep livid colour; aorta healthy.

Abdomen.—Liver fatty and voluminous; bile in gall bladder thick, and of a brown colour; lining membrane of stomach covered with some thick and tenacious mucus, alternately red and softened in the great extremity; healthy within three inches of the pylorus, thin and mamillated elsewhere; duodenum natural; numerous pale yellow miliary granulations under the mucous membrane of small intestine, in the upper four feet; farther down, their number diminished, and they ceased altogether in the lower third; middle-sized ulcerations throughout the whole intestine, interspersed with tubercular granulations, and separated by intervals of from three to eight inches; their bottom was blackish, and the mucous membrane a little detached and thickened on the edges in the greater number. The last ulceration, which included the ileo-cœcal valve and the whole circumference of the intestine, was by far the most extensive. The corresponding muscular layer was thickened and denuded. There were several ulcerations in the large intestine, where the lining membrane was pale and soft as mucus; these ceased within three inches of the anus. The lowest encircled the gut, and was about four lines wide. All the mesenteric glands were enlarged and tuberculated; some of the meso-colic were equally so. The remaining viscera healthy.

303. Notwithstanding the number of the various alterations which have been described, each gave rise to their peculiar symptoms. Phthisis presented its own; those of pleurisy were distinctly marked. The same may be said of the state of the brain and its membranes. The ulcerations of the epiglottis were pointed out by the situation of the pain; those of the larynx by the change of voice, and subsequent aphonia. Lastly, the obstruction complained of by the patient behind the upper portion of sternum, and the pain in the course of trachea during inspiration, justified the suspicion of some more or less considerable alteration. We shall presently find that this last symptom existed also in cases where the mucous membrane of trachea was merely red and slightly thickened; an additional reason for regarding it of importance in the diagnosis of the lesion we are now considering. The dyspnœa was urgent; but the state of lung and pleuræ of right side sufficiently explain its existence; besides, it coincided with the attack of pleurisy, which came on when probably the affection of the trachea did not exist.

The anorexia, nausea, pain in the epigastrium, were in unison with the condition of the gastric mucous membrane. The diarrhœa, though not copious, had persisted, almost uninterruptedly, nine months; and we found the intestinal ulcerations by no means small, and very numerous. The tenesmus complained of by the patient, though not urgent, indicated some alteration of the mucous membrane of the rectum; and we have accordingly seen it the seat of ulcerations, one of which was remarkable for its annular form.

It is possible then, in some instances, as we have before remarked, to recognise the greater number of the complications which occur in the course of chronic diseases, when even general debility is considerable.

In the following observation, the affection of the trachea was still more pronounced than in the one which precedes, without however giving rise to any appreciable symptoms.

OBSERVATION XVII.

304. A tailor, aged 24, of weak constitution, not liable to colds, received, in 1814, a kick from a horse in the region of the pubis. A tumour of a very chronic nature succeeded, opened spontaneously, and gave rise to a fistula, which for nine years

was alternately closed or discharging. He was admitted into the hospital of La Charité, 16th February, 1824, having experienced, the last five weeks, pains in the upper part of thighs which rendered progression difficult. For nine months had coughed and expectorated, with occasional slight hæmoptysis. During the last two months, the expectoration had been difficult, and the sputa seemed to lodge in the larynx, where there was a sensation of dryness. Diarrhœa had been rather copious for more than two months, since when the appetite had almost disappeared.

17th.—Face pale; mind active; great debility, and almost extreme emaciation; pains in the upper part of thighs increased by any attempt to walk. The fistula, which was situated just above the symphisis pubis, discharged a small quantity of thin pus. Little cough; expectoration scanty, greenish, opaque, mingled with a certain quantity of limpid mucus; much dyspnœa; percussion everywhere clear; no pectoriloquy or cavernous respiration; a slight mucous ronchus was heard, but *confined to the upper part of chest*; voice natural; no pain in larynx or trachea; pulse rather quick; heat moderate; rigors rare; perspirations copious; mouth clammy; tongue rather red on edges; anorexia almost complete; little thirst; abdomen yielding, and without pain; six liquid stools. From this period, up to 25th April, when death took place, no uneasy sensation was felt in the neck. He only complained of slight soreness of throat a few days before the fatal termination. The pharynx was always natural, and no change was observed in the voice. The expectoration continued as before. On the 6th March, percussion was clearer posteriorly on the right side than on the left; there was also slight resonance of voice under the right clavicle, and mucous ronchus under the left. 22d.—Percussion in the latter region completely dull; the respiration cavernous, with indistinct pectoriloquy. The patient was constantly lying on his back.

The perspirations continued, notwithstanding the use of the acetate of lead in gradually increased doses; pulse more or less accelerated; rigors present almost every evening.

The appetite rapidly increased, the patient eating the half of the usual house allowance in the beginning of March; this was the case to the last.

Up to the 19th April, the diarrhœa was inconsiderable, but it then suddenly, and without apparent cause, became copious. On the following evening, he was seized with extremely acute pains in abdomen, followed by prolonged rigors and frequent nausea. 21st.—Much less pain; belly tympanitic; tongue red; slight alteration of expression. 22d.—Pain had ceased; abdomen sunk; stools numerous, with extreme weakness; and on the 25th death took place, at 10, a. m.

Diascordium, with mucilaginous mixture and opium, were principally prescribed.

Sectio Twenty-two Hours after Death.

Exterior.—The rami of the pubis were denuded of their periosteum, and surrounded by thin, greyish, and rather fœtid pus; the attachment of the muscles to the descending ramus destroyed; those forming the boundaries of the abscess were greyish and greenish coloured, covered by softened detritus of the same colour. The abscess extended as low down as the middle of both thighs.

Head.—Two small spoonsful of fluid over the upper portion of arachnoid; slight sub-arachnoidien infiltration; pia mater slightly injected; brain healthy; a spoonful of serum in each lateral ventricle.

Neck.—Three superficial ulcerations on the laryngeal surface of epiglottis: the intervening mucous membrane healthy a small ulceration at the junction of cordæ vocales; lining membrane of trachea pale and ulcerated; the ulcerations increased in number and size from above downwards. Many of the cartilaginous rings were denuded; in some there were small lenticular excavations; twelve were partially much thinned; three were completely destroyed for about a line. The muscular fibres corresponding to the softened portions were exposed and nearly destroyed, where the ulcerations existed.

Chest.—Universal adhesions of both lungs. The upper lobe of left lung was indurated, impermeable to the air, with the exception of a very thin superficial layer; it presented a middle-sized excavation in its summit, partially invested by a red, firm, false membrane, lying on the grey semi-transparent substance, interspersed with tubercles. The cavity contained a turbid, thick, and greyish fluid, and communicated with the bronchi, which were here redder and more thickened than elsewhere. The remainder of the lobe offered some small excavations, and was almost entirely transformed into the grey matter, which was thickly sprinkled with tubercular granulations. Lower lobe healthy. The same alterations existed on the right side, but were less extensive. There were some small superficial ulcerations in the left bronchi; heart a third less than usual; aorta natural.

Abdomen.—Half a pint of troubled inodorous fluid in the abdominal cavity; no communication with the abscess behind the pubis; slight adhesions between some of the convolutions of small intestines by means of a soft yellow coloured false membrane, which also covered the bladder and rectum. The subjacent peritoneum was of a bright red; liver small and healthy; bile rather abundant, viscid, and green coloured. The stomach contained a small quantity of yellow fluid, was voluminous, and its mucous membrane pale and of perfectly natural firmness and thickness. At the origin of small intestine there were numerous opaque, sub-mucous, miliary granulations, and throughout its whole length ulcerations increasing in size and number from above downwards. If small, they were usually partially concealed by the valvulæ conniventes; when larger, they occupied the glandular patches, of which some were destroyed, whilst others presented small ulcerations more or less approximated, with some softened tubercles. The muscular tunic was not denuded, except where it corresponded to some large ulcerations, and then only partially. In the cœcum and transverse colon, there were two very extensive ulcerations. They encircled the intestine, and were at least three inches long, presenting a greyish rugged surface, formed by the submucous cellular layer, while the corresponding muscular layer was twice its usual thickness. Between these large ulcerations there were six smaller ones. The descending colon and rectum were occupied by others, tolerably numerous, narrow, semicircular, and dark coloured. Mesenteric glands voluminous, red, and partly tuberculated. This was the case for those of the meso-cœcum and meso-colon, corresponding to the ulcerations. The other viscera were healthy.

305. In this, as in the preceding instance, there were ulcerations of the epiglottis, larynx, and trachea. In the latter they were extensive, deep, and accompanied with partial destruction of the fibro-cartilages; but none of these lesions were indicated by the symptoms. It was in vain that we attempted by questions to elicit them, and our failure cannot be attributed to a deficiency of intelligence in the patient, whose memory was good and mind active, or to his extreme weakness. In proof of the accuracy of this last assertion, we would refer to our observations of croup in the adult,* where weakness was almost constantly present, but when more or less acute, pain in the trachea was invariably complained of. Among others, we remember the case of a woman who died from phthisis, and who was attacked with croup when the emaciation was at its maximum, and who complained of heat and pain in the course of trachea from the very commencement of the affection. It is probable, in the present instance, that the absence of symptoms was owing to the extremely slow progress of the disease.

306. Although we are unable to determine the exact period when the morbid state of trachea commenced, we think, however, from the lesions observed, it must have been of considerable duration. It may be also remarked, that this is the first instance where we have seen the complete destruction of portions of the fibro-cartilages, and where the alterations of the muscular layer were so considerable.

307. Let us also remark, that the bronchi were only ulcerated on the side corresponding to the large excavation, that they were here redder and thicker than elsewhere; thus confirming what we have advanced on the presumed cause of ulceration in the air passages, and the influence of the expectorated matter on their inflammatory appearance (53).

308. The inconsiderable diarrhœa until within a few days of death, notwithstanding the number and size of the intestinal ulcerations, must not be overlooked. This great disproportion between the symptoms and lesions is not common, and may perhaps be attributed to the fact of the sub-mucous layer in the ulcerated portions not being, as it usually is, destroyed; indeed this is the only example of large ulcerations, where the thickened muscular tissue was not more or less extensively denuded.

309. When the *inflammation of the lining membrane of trachea* (characterised by a bright red colour, sometimes conjoined with slight thickening or softening), existed *without*

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* *Mémoire sur le Croup considéré chez l'Adulte.*—Vide *Recherches Anatomico Pathologique sur diverses Maladies.* 8vo. Paris. 1826.

ulcerations, in some instances the patients complained of a more or less acute pain, accompanied with sense of heat in the neck; this was observed in three out of seventeen. Five others suffered, during some time, from pains of the throat and larynx, although no morbid change could be detected.

310. If we compare the symptoms complained of in the three first cases, with those we have observed in croup, where heat and pain were almost constantly present, we feel justified in regarding them, whenever they occur in the course of phthisis, as indications of inflammation of the mucous membrane of the trachea. Perhaps we may also include the existence of *pain* referred to the larynx or pharynx, when the deglutition and voice are not affected; for pain in the throat, accompanying inflammation of the mucous membrane of the trachea, is analogous to what is felt in the glans penis from calculus in the bladder.

311. Hoarseness was sometimes present when there was neither ulceration or inflammation of the laryngeal mucous membrane, but it was then transitory, occurred at different periods of the disease, and was not accompanied by pain in the throat.

In conclusion then, we find, that in the majority of cases ulcerations of the larynx gave rise to their peculiar symptoms: —that those of the epiglottis, if not extensive, were usually latent:—that those of the trachea were only once characterised by special symptoms:—that the simple inflammation of the mucous membrane of the trachea frequently excited heat and pain, the latter being sometimes referred to the throat or larynx.

CHAPTER V.

SYMPTOMS OF THE VARIOUS ALTERATIONS OF THE GASTRIC MUCOUS MEMBRANE.

312. At different periods of phthisis, patients experienced symptoms of variable intensity referrible to the stomach. As these varied with the lesions of the mucous membrane, we shall describe them under corresponding sections.

§ 1.—*Symptoms of softening, with diminished thickness of the Mucous Membrane of the Stomach.**

313. At a variable period (seldom at the commencement of phthisis), most frequently from two, four, five, or six months preceding the fatal termination, patients who were attacked by the morbid alteration we are considering, lost their appetite, and soon after, experienced acute pains in the epigastrium. Some days or even months subsequently, they had nausea, then vomiting, or these last symptoms existed at the commencement, and were succeeded, after one or more weeks, by pain. It was rare to see all these symptoms originate at the same time. In many instances they were intense from the beginning; in others, their development was gradual; most frequently they became more and more insupportable, and continued with variable remissions until death.

314. The following symptoms were almost invariably present, but differing in intensity. In sixteen cases out of nineteen, there was nausea with epigastric pain, and in fifteen, vomiting. In three there were no very distinct gastric symptoms, notwithstanding the serious nature and extent of the alterations of the mucous membrane.—(*Obs.* 10, 26.) In some, the pain, nausea, and vomiting, were preceded during one, two, or three years, by disordered digestion.

315. The pain was pungent, lancinating, and occasionally accompanied with heat; it produced, in some instances, the feeling of a bar stretching across the epigastrium; in others it could not be referred to any type. It was usually continued and progressive in intensity. It was, however, at times intermittent, ceasing altogether a few days before death. When very acute, it engrossed the patient's attention, and unless we had carefully examined all the functions, the existence of phthisis might for a time have been overlooked. The acuteness of the pain was the more remarkable, since we observed it in instances where general debility was considerable, and the complications numerous. The slightest pressure over the stomach was insupportable, and liquids of moderate temperature appeared as

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* For greater detail we refer the reader to our *Recherches Pathologiques*, already cited, First Memoir. (Author.)

if iced. The pain was not sensibly alleviated by opium, it was sometimes diminished for several successive days by the eau de Seltz.* It was in one instance calmed for a short time by a cordial draught.—(*Obs.* 31.)

316. The vomitings were almost always bilious, increasing in frequency as the disease proceeded.

317. Light food was in some cases digested without much difficulty, others could only venture to eat at a particular hour, generally the morning.—(*Obs.* 32.) The appetite occasionally improved for one or more weeks, though the mucous membrane was seriously and extensively affected.—(*Obs.* 39.) But sooner or later, in the majority of instances, no kind of food could be supported, and even pure water was rejected; the dread of causing vomiting overcame the urgency of thirst.

318. Among the symptoms therefore indicating the softened condition and diminished consistence of the gastric mucous membrane, anorexia, nausea, vomitings, and epigastric pains, may be enumerated. They afford us a proof that the lesions of the stomach, in common with those of the other organs, are characterised by pain and disordered functions.

319. When the symptoms we have described had been constantly present for some time, say three or four weeks, we might regard as certain, the existence of a thinned and softened mucous membrane. Daily experience convinced us of the truth of this assertion.

320. Many of the observations scattered through the course of this volume (*Obs.* 31, 32, 39, &c.) may be cited in support of what we advance, but the following appears more than usually applicable.

OBSERVATION XVIII.

A woman, aged 35, mother of several children, of weak constitution, and not liable to cold, entered the hospital of La Charité, 13th of July, 1824; had been confined ten months ago, and had suffered much in the left knee the last six; it presented all the external characters of a white swelling. Two moxas were applied, and followed by cessation of the pain and diminished volume of the joint, which subsequently became ankylosed. On the 5th of November she was transferred into the wards of M. Chomel, and in addition to the preceding details, we learned, that on the 1st of August, after great mental disturbance, she was seized with alternate rigors and flushings, cough, epigastric pains, nausea, and occasional vomiting; that at the same time there had been slight augmentation of thirst and loss of appetite. These symptoms, which had since persisted, were soon associated with increased heat of surface coming on in the evenings, night perspirations, and occasional rigors. The expectoration had only been present since October. Shortly after, acute pains were felt in the right side of chest, and after a week's duration yielded almost immediately to the application of a blister. The stools were fluid and frequent during the last three days; emaciation dated from the period of her last confinement. 5th of November.—Expression rather animated; great general debility, the slightest exertions followed by exhaustion; thirst moderate; anorexia almost complete; tongue natural; pain in epigastrium much increased by pressure; frequent nausea, principally during the night and after the cough, sometimes followed by bilious eructations; abdomen slightly painful; evacuations liquid with previous colic; cough most troublesome in the night; expectoration, white spumous, floating on a large quantity of clear fluid; respiration rather accelerated; percussion less clear on the lateral and inferior half of right side; respiratory murmur stronger under the right clavicle with occasional crepitation; pulse 115, small and weak; temperature moderate during the day, elevated at night; rigors in the evening with night perspirations; oppression referred by patient to epigastrium, which was the seat of much uneasiness and anxiety. (Solution of gum syrup; rice water with lemon juice; a grain of opium in a mucilaginous mixture.)

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* Seltz on the lower Rhine. The water contains—Carbonic acid 213 parts; carb. sod. 5 ; carb. mag. 6; carb. of lime 78; mur. sod. 13; in 8,949 parts of water. (Translator.)

The gastric symptoms continued, and became daily more intense. From the 8th to the 21st of November, two days before death, bilious vomitings occurred frequently in the four-and-twenty hours, either accompanying the cough, or in the intervals; extreme uneasiness and anxiety; sense of suffocation, with very acute pains in the epigastrium; the slightest pressure insupportable. Distaste for all food; the weakest broth causing a feeling of oppressive weight in the stomach. She afterwards vomited everything; drank extremely small quantities at once, and liquids at the ordinary temperature appeared cold, like ice. Tongue was natural, or even pale, up to the 18th; it then became red, hot, pointed, and covered by white apthous patches, which were frequently renewed. They extended to the lips, inside of cheeks, and roof of mouth; at first appearing under the form of small spots, gradually increasing, and by their reunion covering the surface. The stools were fluid, but not frequent until the 18th, they then became suddenly very numerous, and during the three last days were passed involuntarily. At the same time there were pains over the whole abdomen, and especially in the right iliac fossa.

The cough remained stationary; expectoration scanty and spumous; percussion did not vary. 19th.—Cavernous respiration under the right clavicle, but no pectoriloquy; pulse small, weak, and rapid, except during the last four days, when it fell from 140 to 100. Great sensibility to cold. The patient was constantly changing her position in bed, labouring under the greatest general uneasiness and anxiety. No delirium was observed before death, which took place 23d Nov. at 6, a. m.

Sectio Twenty-six Hours after Death.

Exterior.—Extreme emaciation.

Head.—Slight sub-arachnoidien infiltration; brain healthy; two small spoonsful of fluid in right lateral ventricle; rather less in the left; no other alteration.

Neck.—Epiglottis, larynx, and trachea healthy.

Chest.—Left lung without adhesions, presenting at the middle portion of upper lobe, a greyish coloured and whitish mass, about the size of a small hen's egg, composed of an infinite number of tubercular granulations, separated here and there by a reddish and slightly granulated tissue. There were also, in other parts, grey granulations, some of which were immediately beneath the pleura. Right lung universally adherent by means of a dense laminated false membrane. This was thicker inferiorly, and the greater part transformed into tuberculous matter. There were numerous yellow and grey granulations under the pleura, and especially when it lined the interlobular fissures, the edges of which were about a line in thickness, and converted into the grey semi-transparent substance. At the summit of the upper lobe there was a middle-sized excavation, containing a small quantity of pus, communicating with the bronchi, but not lined by false membrane. The pulmonary parenchyma was rather firmer in its immediate neighbourhood than elsewhere. The bronchi in the same region were of a bright red colour. Heart small; aorta natural.

Abdomen.—Stomach of moderate volume, containing a small quantity of turbid bile; the anterior half of its mucous membrane, to within three inches of the pylorus, was of an unequal yellow tinge, and with the exception of some small spots, soft as mucus. The softened part was much thinner than natural. Near the cardiac orifice, and in the small curvature, where the softening and diminished consistence were least evident, the mucous membrane offered four reddish elevations, firmer than itself, about a line thick and rather less in breadth. No peculiarity observable in the sub-mucous vascular ramifications. The lining membrane of small intestine was of a pale pink hue, and of normal thickness and consistence. Some small ulcerations occupied the last glandular patches; the large intestine contained a little thin, turbid, reddish fluid. Its mucous membrane was of a dark red colour, minutely mamillated, slightly thickened, and not firmer than mucus. In the ascending and transverse colon there were three ulcerations, of a line and a half in diameter, with denudation of the corresponding muscular coat. There were also some smaller ones in the middle of rectum, close together, and lined by the sub-mucous layer; this was opaque, and everywhere three times its natural thickness. The liver was rather voluminous, exsanguine, adipous, and extending below the ribs. Bile of gall bladder moderately thick, in colour like the juice of preserved prunes. Spleen of ordinary dimensions, partially invested by a thick false membrane containing some tubercles; it presented internally about sixty granulations of the same nature, surrounded by the healthy parenchyma. The meso-cœcum, and small omentum, offered on their surface some tuberculous patches. The other viscera were healthy.

321. This observation is interesting in many respects. In

the first place, the simple recital of the facts proves that the affection of the lungs and that of the stomach, commenced simultaneously, which is by no means usual; and while in the majority of cases, death is most frequently to be attributed to the lungs, it was in this instance caused rather by the state of the stomach, than any other lesion. From the great preponderance of the gastric symptoms, it would have been here easy to have overlooked the presence of phthisis. The patient's attention was wholly directed to the stomach, and it was necessary to force her, by repeated questions, to speak of the state of her chest. The progress of the softening was not very rapid, and yet we never saw such intense anxiety and uneasiness, or so energetic an expression of suffering. The succession of the symptoms is particularly worthy of attention; their little intensity at first when the lesion of mucous membrane was inconsiderable; and their uninterrupted progress afterwards. In the beginning we find slight epigastric pains, nausea, and vomiting excited by cough; the nausea is then permanent; the vomiting occurs in the intervals of the cough, consists of bile, and daily increases in frequency and copiousness; there is a gradual augmentation of pain; in short, the symptoms are always proportionate to the morbid changes taking place.

322. The diarrhœa, so suddenly violent towards the close of life, is also a very remarkable fact. It was accompanied by acute pains throughout the abdomen, and indicated no doubt the commencement of one of those severe cases of enteritis so frequently developed in the last stage of phthisis (264), and which so rapidly produce the softening of the mucous membrane of large intestine. Let us also remark, that this softening corresponded to a considerable thickening of the submucous layer, which retained its whiteness, although we cannot but consider its increased thickness as the result of acute inflammation.—(135.)

323. The state of the lung and pleura of right side merit attention. The former, on account of the excavation in the upper lobe, which offered the very rare example of a tuberculous cavity of a certain size, immediately surrounded by almost healthy parenchyma; the pleura, on account of the false membrane on its surface, and its tubercular transformation; a fact we have never observed *but when tubercles existed in the lungs.*

324. The pleurisy which gave rise to the membranous exudation, came on only a month before death, that is, when there were tubercles in the summit of both lungs, and more especially on the right side; we cannot therefore attribute their development to a subsequent and accidental inflammation. We cannot either suppose pleuritis to have been the cause of the tubercles situated immediately under the pleura, since these were equally present on the left side, where the lung was free from all adhesions, and the pleura natural.

325. Lastly, the tuberculous matter developed in the false membranes covering the right pleura and spleen, in the substance of the latter, and on the peritoneal surface, was every where unsoftened, in the same stage of development; this seems to require, as we have already remarked (210), the presence of one and the same cause simultaneously acting upon different organs.

§ 2.—*Symptoms of the Inflammation of the Mucous Membrane of the Stomach when bounded to its anterior surface.*

326. The eight individuals in whom we have observed this morbid condition, experienced during a variable space of time, anorexia, pains, heat in the epigastrium, occasional nausea; some few had vomitings. Only one was exempt from pain, and in this instance phthisis had lasted five years, and the appetite had only ceased a few days before death.

327. These symptoms of an affection of the mucous membrane of the stomach, were not all present at the same time. Anorexia most frequently was first observed, and this was soon followed by pain in the epigastrium. Pressure in this region increased it, and there was often a burning sensation, with more or less complete remissions, and a feeling of suffocation was caused by the smallest quantity of food. Nauseæ were the last in their appearance, very variable in frequency and duration, and sometimes solicited by the cough. Vomiting only occurred in two instances, in one of these the ejected matter was bilious, in the other white and insipid. In every instance there was fulness in the epigastric region, produced by the liver descending below the ribs; a fact which has more than once made us suspect that the gastric symptoms were caused by inflammation of the *anterior surface of the stomach.*

328. The symptoms were of shorter duration than where the membrane was thinned and softened; they were generally present from one to three months. The progress of the affection was chronic, though the pain and other morbid phenomena were occasionally very urgent. The following is one of the most interesting examples that we have collected.

Observation XIX.

A girl, aged 26, of strong constitution, of nervous temperament, and having been constantly liable to cold during the last five years, entered the hospital of La Charité 20th January, 1823. During the first two years and a half, none of her symptoms had been urgent. After this, there was an increase of cough and expectoration, and for five months a constant spitting of blood, notwithstanding repeated bleedings and the application of leeches. There was some slight improvement in the general symptoms the two following years; she almost completely regained her strength and flesh; the catamenia, which had been suppressed during eighteen months, returned with their usual intervals; in short, she suffered from nothing but a slight cough and some dyspnœa, when in November, 1822, after dancing, she was attacked during the night, with violent rigors, followed by heat and perspiration, accompanied with pains in the right side of chest, and increased cough and dyspnœa. From that moment, the shiverings returned every evening, the pain persisted, and on the sixth day she was attacked by an hæmoptysis, which continued, though gradually diminishing in intensity, up to the period of the patient's admission into the hospital.

January 9.—Oppressive headache; great debility; dyspnœa with shooting pains between the shoulders; cough frequent at night; expectoration greenish, streaked with blood, scanty; this was mingled with a clear, frothy, and more copious fluid; a mucous ronchus posteriorly on the right side; everywhere else, respiration healthy; no resonance of voice or pectoriloquy; tongue natural, thirst urgent; anorexia; nausea from cough; epigastrium sensible to pressure; constipation.—(℞ Pectoral ptisan; pectoral mixture with ammonia; two rice creams.)

Jan. 22.—Sputa nummulated, united by a clear mucus, without any trace of blood; the patient complained of acute pain in the right side; leeches were applied with decided relief. On the next day pains in the epigastrium, with nausea in the intervals of the cough. From this period until death, which took place on the 17th of May, the following symptoms were observed.

On the 27th of January, there was a fresh pain in the right shoulder, near which a crepitating mingled with a cavernous ronchus, could be heard. On the 29th, the pain had increased, the respiration was more embarrassed, the cough frequent, and the expectoration clear with streaks of florid blood; a fine crepitation was heard over the whole of right side. Pulse very rapid, small and weak. Eight ounces of blood were taken with prompt relief. Feb. 5.—Another attack of pain, slight crepitation under the right mamma: this also readily yielded to an application of leeches. Subsequently the pain, dyspnœa, and crepitation, with occasional yellow and viscous sputa, were renewed from time to time, and successfully combated by the same means. On the 5th of May, there was evident pectoriloquy between the scapula and spinal column on either side, with dulness on percussion under right clavicle, and some fine crepitation. On the 11th, there was slight hæmoptysis, and the expectoration assumed a dirty grey colour, which it retained to the last. The anorexia and nausea continued during some days, after which the appetite improved, so that she eat one-fourth of the full allowance, with only a slight feeling of oppression after every meal. In the commencement of March, the anorexia, with pains in the epigastrium, returned. On the 15th and 16th, there were almost constant nausea, with small bilious vomitings, and sense of heat in epigastric region. The loss of appetite continued, the nausea gradually ceased, leaving headache, general lassitude, and some bilious vomitings. During the month of April, the same symptoms were observed. On the 2d of May, increased anxiety and uneasiness, with general tenderness of abdomen: constant epigastric pain increased by the slightest pressure, cough, or movement.

The tongue, which had hitherto been natural, became very red, and covered with small apthous patches, easily removed. These appeared and disappeared several times, and the pain in the region of stomach after a slight diminution returned with great intensity a few days before death. Diarrhœa came on during the last fortnight; pulse was constantly accelerated, heat increased towards the evening, with night perspirations; the rigors were much less frequent.

Sectio Twenty-six Hours after Death.

Exterior.—Extreme emaciation.

Head.—Adhesion between the arachnoid and dura mater, near the longitudinal fissure, and in other points, by means of some white opaque granulations attached to the arachnoid, which was more or less thickened and opaque in the corresponding portions; the sub-arachnoidien infiltration rather copious; cerebral substance softer than natural; three spoonsful of fluid in the left ventricle, rather less in the right; half a spoonful of similar fluid in the ventricle of the septum lucidum, which was itself firm and resisting.

Neck.—Left cervical glands voluminous, tuberculated, but not softened; similar state of the bronchial glands; larynx and epiglottis natural; trachea of a pale pink colour, without ulceration.

Thorax.—Some slight cellular adhesions at the summit of both lungs. Externally there were numerous white and slightly pink coloured elevations formed by the tuberculous matter. In the upper lobe on the right side, there were two cavities communicating with the bronchi, and a certain number of tubercles surrounded by the firm, granulated, hepatized lung, impermeable to the air, of a red colour anteriorly, and a yellowish grey posteriorly. In the lower lobe there were only a few tuberculous granulations. In the upper part of left lung there were some small excavations, and some semi-opaque grey granulations, surrounded by a grey semi-transparent substance, into which this lobe was almost entirely transformed. The inferior contained a small number of granulations, and was slightly congested at its base. There were four ounces of serosity in the pericardium; the heart was small but healthy; the aorta and pulmonary artery sound.

Abdomen.—The liver extended four inches below the false ribs, was enlarged, adipous, of a tawny colour, spotted with red, and of moderate density. The biliary vesicle contained a dense black stringy bile; the stomach descended below the crest of the ilium, was voluminous, elongated, and partially overlapped by the liver: its lining membrane was covered by a thick viscous mucus, much more abundant over its anterior surface, than elsewhere. In the former part it was of a bright red, evidently thickened and softened; in the remainder of its surface it was of a pale red, without other alteration. Duodenum healthy. Mucous membrane of small intestine greyish coloured and easily torn, with here and there vascular aborisations, and presenting seven small dark ulcerations, generally distributed, of two lines in diameter, with wide intervals between them. The lining membrane of large intestine was greyish or blackish, and everywhere softened, with twelve small ulcerations in the cœcum and ascending colon, and three in the rectum immediately above the sphincter ani; the mucous membrane was slightly detached on their edges, and the corresponding submucous layer greyish coloured and thickened. The mesenteric glands were healthy, but round the biliary vessels there were numerous tuberculated lymphatic glands. Spleen small, with four tubercles in its interior, of the size of a small nut.

329. Let us reflect for an instant on the facts of this observation. The volume of the stomach was considerable, it extended low down, and was partly covered by the liver; the mucous membrane lining the anterior surface was of a bright red colour, thickened, and a little softened—most evidently inflamed; the inflammation was almost limited to the portion overlapped by the liver, which renders the influence of this organ on its development very probable. The anorexia, epigastric pain, nausea, and bilious vomitings, were in unison with the gastric lesion, and from the urgency of the former, we might have anticipated the more serious alteration of softening with diminished thickness. Though chronic in their progress, the symptoms daily acquired greater intensity. Thus this form of gastritis which prevailed in seven-eighths of our cases, gave rise to characteristic symptoms, only varying from the more acute form by being less urgent, and the only occasional presence of vomiting. This fact confirms what we have advanced in the preceding article; namely, that the stomach, in common with the other organs, reveals its morbid alterations by pain and the greater or less disturbance of its functions.

We shall shortly specially consider the state of the tongue, but we may here remark, that in the two last instances it retained its natural appearance; that it was even pale up to the moment when it was covered with an apthous exudation, a period long subsequent to the invasion of the gastritis.

330. The development of tuberculous matter in the lymphatic glands is worthy of notice. The mucous membrane of trachea was of a very pale pink colour, less than what we usually observe after a variety of other diseases; it was neither softened nor thickened; it might have been considered perfectly healthy, and consequently we have no reason to attribute to it the state of the cervical glands. It will however be perhaps thought, that the state of the glands, surrounding the biliary vessels, might be explained by the condition of the gastric mucous membrane. To this we would reply, that if some of the lymphatics of the stomach traverse the glands in question, it can only be *after* passing *through those situated on the small curvature*, and if the inflammation of the mucous membrane was not sufficient to transform *these latter* into tuberculous matter, we cannot suppose it capable of affecting the more distant. Let us add also, that we have only seen the tubercular transformation of the glands surrounding the biliary ducts, three times, and that we have *never* seen the same alteration in the *glands occupying the small or great curve of the stomach*, although some form or other of inflammation of the gastric mucous membrane was very frequent.

331. We shall be very brief on the morbid alterations in the lungs, only remarking, that the frequent recurrence of inflammation on the right side confirms what we have advanced (286) relative to the curabilify of pneumonia in phthisis, and that tubercles may be regarded, in this respect, as foreign bodies, the influence of which, in the production of pneumonia, is always less injurious than that of internal causes.

§ 3.—*Symptoms observed when the Mucous Membrane of the Stomach is red and softened in the great Cul de Sac.*

332. Whether this state of the lining membrane was alone present, or accompanied with small ulcerations, or a mamillated state of the mucous membrane, we could seldom detect any

symptom which might be considered as characteristic. There had, in some cases, been diminished appetite long before death; but this, with some exceptions, seemed to coincide with the progress of the principal affection, and was also present when the gastric mucous membrane was sound. In the majority of cases there was only complete anorexia from ten to twenty days before death. In two instances, or one-ninth, towards the close of life, there were nausea and epigastric pains. This absence of symptoms attending an alteration which is usually very serious, and presenting the characteristic pathology of acute gastritis, has made us suppose that in the majority of cases, it came on very shortly before death.

333. The following is one of the two cases we have mentioned, in which the gastric symptoms have presented the longest duration and greatest intensity.

Observation XX.

An unmarried woman, aged 48, tall, of strong constitution, and not having menstruated the last ten years, entered the hospital the 22d September, 1822. Said she had been ill nine months, was never subject to cold, and had not had pneumonia; at the commencement, cough, dyspnœa, night sweats; these symptoms persisted, gradually increasing, and the perspirations had become copious. During the fifth month, was attacked with hæmoptysis, which lasted two days, with pain in the right side; the latter has since continued; she is obliged to lie on the left side. Rigors were rare; diminution of appetite since the invasion of cough, and for four months the patient has only taken a small quantity of broth, with bread; thirst urgent; emaciation from the first.

September 3.—General headache, to which she has been subject the last six months, with giddiness on assuming the vertical position; nose and lips livid; lies with the head raised; respiration rather thoracic and accelerated; cough moderately frequent; sputa scanty, clear, spumous, or greenish, and with white streaks. On the right side, anteriorly, and especially exterior to the mamma, the chest was dull on percussion; there was no pain, but almost everywhere cavernous ronchus and coarse crepitation. Under the clavicle the respiration was tracheal, and pectoriloquy indistinct. On the left, nothing peculiar, either from auscultation or percussion. Pulse frequent, unequal, irregular, and sometimes intermittent; action of heart was sensible in every part of chest, and accompanied with pretty strong impulse in the precordial region, especially under the sternum; mouth clammy, with bitter taste; thirst urgent; anorexia; tongue rather red in the centre; pain in the epigastrium for some hours; nausea frequent immediately after, and in the intervals of cough; bowels costive; abdomen rather tympanitic.—(℞ Solution with nitre; mucilag. mixture, with thirty drops of tinct. digitalis; twelve leeches to the anus.)

From this moment until the 1st October (day of her death), continuance of the same symptoms; the anorexia, nausea, epigastric pains, were more or less urgent; no vomiting. A small quantity of soup did not appear to increase uneasiness; the tongue continued red in the centre; there was slight diarrhœa, with some pains in the iliac regions. Pulse was less irregular twenty-four hours after the application of the leeches, but afterwards its irregularity daily increased. Lower extremities became infiltrated; perspirations were copious, with occasional rigors.

No sensible change of expectoration. The dyspnœa rapidly increased, at times requiring a sitting posture; the pain under the right mamma continued more or less acute to the last; death took place after an agony of some hours.

Sectio Twenty-eight Hours after Death.

Exterior.—Slight infiltration of lower extremities.

Head.—Some nearly fluid sub-arachnoidien infiltration. A spoonful of serum in each lateral ventricle; no other alteration.

Thorax.—Dense adhesions at the summit and base of right lung. Between these points, the false membrane formed a kind of sack traversed by filaments enclosing in their intervals a small quantity of clear reddish fluid. A large rugged excavation occupied the summit of right lung, lined by a double false membrane; its firmest layer was in contact with the pulmonary structure, which was either healthy or more or less modified; a communication existed with the bronchi and numerous small cavities. The lower lobe was congested. No adhesion on the left side; the lung contained a few softened tubercles, and a small quantity of the grey semi-transparent matter in its upper lobe. The heart and pericardium were invested by an undulated false membrane of tolerable consistence, a line or more in thickness, and bathed by a small quantity of clear reddish fluid. Parietes of left ventricle rather thicker than natural; those of the auricles were thin. Lining membrane of aorta and its branches of a bright red colour, without any change of thickness or consistence.

Abdomen.—Two pints of clear fluid in peritoneal cavity; stomach voluminous; lining membrane thick, very soft, of a violet red in the large extremity; of a greyish colour, granulated, and of increased thickness and consistence in the remainder of its extent. Mucous membrane of small intestine twice its usual thickness in the three upper fifths; colour and consistence everywhere normal; there were three very small ulcerations near the ileo-cœcal valve. That of large intestine was much softened throughout its whole length; of a pale pink colour in the descending colon and rectum, with numerous small ulcerations, diminishing in number from above downwards. Mesenteric glands healthy; liver voluminous, congested, of a greyish yellow colour, spotted with bright red; bile dense, but light coloured. Left kidney twice its usual volume; the right much larger still, with an unequally lobulated surface, almost wholly consisting of a membranous sac, filled by a clear dark coloured fluid, and intercepted by a transverse septum, pierced in its centre. There were no traces of the renal structure, except on the convex edge, where there was a layer of from two to three lines thick. On the neck of the uterus there was a soft vesicular polypus; the other viscera appeared healthy.

334. The lining membrane of the stomach was here the seat of two very distinct alterations; the one, consisting in redness, thickening, and softening of the portion covering the large extremity, was recent; the other (the mamillated state) was the result of a chronic affection. To the latter we might be inclined to attribute the anorexia which was present at the early part of the disease; but we shall soon find (340) that we have no satisfactory reasons for doing so. As to the epigastric pains and nausea which were experienced about a month before death, they may be compared with what we have observed in the cases

of the preceding sections, and evidently indicate a more recent affection than the mamillated state, which in fact has never presented the same symptoms; they must, therefore, be referred to the inflammation of the mucous membrane of the great cul de sac.

It is very remarkable that, notwithstanding the coexistence of so many serious lesions, the one we are now considering gave rise to as distinct symptoms as if no complication had been present, and that the same remark will equally apply to the pleurisy, phthisis, and pericarditis. The fever at the commencement may be ascribed to the development of the pulmonary tubercles, for at that time all complications were absent; and moreover we shall relate cases of simple phthisis (*Obs.* 27, 28, 29), in which fever came on at the same period, and with greater intensity.

§ 4.—*Symptoms of simple Ulcerations of the Gastric Mucous Membrane.*

336. Of this condition, as we have already said (96), we have only met two examples. In one, where a single ulceration of about two inches in surface existed (*Obs.* 38), the patient experienced during three months a pain in the epigastrium, increased after meals; during the same period there was diminished appetite, with slow and painful digestions; the other instance we shall now detail.

OBSERVATION XXI.

A girl, aged 19, of nervous temperament, and weak and delicate constitution, naturally thin, not having menstruated, and subject to shortness of breath from her infancy, was admitted into the hospital of La Charité 24th February, 1824. She had been ill three years. Her illness had commenced by a violent hæmoptysis, recurring two days afterwards, and treated by bleeding. This hæmorrhage subsequently reappeared every two or three months, more frequently during the winter than summer; the last attack was about a month since. It was always accompanied with efforts of vomiting, and the patient believed that the blood came from the stomach. The cough and expectoration commenced with the hæmoptysis, and had since continued; her habitual dyspnœa was much aggravated, and she occasionally was inconvenienced by pains in her chest. Nausea and vomiting, often accompanying the paroxysms of cough and diarrhœa with colic, lasting a few days, was not unfrequent; the appetite had always been pretty good. During the last year, she was very subject to rigors, and for fifteen days had been sensible of heat in the evenings, and night perspirations; no thirst. The patient had continued to grow taller, and said she was scarcely aware of having lost flesh.

25th February.—Face and the rest of surface pale; little appetite; tongue whitish; epigastrium indolent; stools natural, but rare; breathing rather accelerated; slight oppression; cough often dry, most troublesome at night; it sometimes caused nausea and vomiting. Sputa thick, greenish, scanty, lying in a limpid fluid like saliva. Percussion of chest everywhere clear. For about four inches under right clavicle there was a coarse and copious crepitation; and in the corresponding point posteriorly, there was cavernous respiration, and imperfect pectoriloquy; on the left side this was quite distinct. Pulse rather quick; heat moderate.—(℞ Infusion of violets; to sit over the vapour of hot water; six leeches to labiæ; a fourth of house allowance).

The progress of the disease was slow, but continuous. From the beginning of March the appetite greatly diminished; there was sense of weight in the epigastrium after food, with almost constant nausea and vomitings, either after or in the intervals of the cough. A small quantity of bile was sometimes mingled with the contents of the stomach; the mouth was clammy, and with a bitter taste; the tongue was whitish in the centre, and red on the edges. In April, the symptoms were more urgent; the mildest drinks caused oppression in the epigastrium, and were sometimes vomited; very rarely pure bile was ejected; nauseæ were constant; appetite almost extinct; expression depressed; temper irritable, with frequent anxiety; the thirst became urgent, without any change in the appearance of tongue; she never complained of epigastric pains. The same symptoms continued until death, which occurred on the 12th May.

The stools became soft towards the end of March; they were fluid in the beginning of April, and preserved the same characters, though never numerous, to the last; they were accompanied with very little pain.

The dyspnœa rapidly increased; the cough was always more urgent at night. From April the sputa were isolated, with a ragged flocculent appearance, greenish, flat, and after the 1st May, purulent. Percussion of chest was dull anteriorly and on the left side, towards the end of April. From the 18th March, under both clavicles and in the corresponding region posteriorly, there were cavernous respiration and pectoriloquy. Under the right clavicle, occupying a considerable extent, there was a very coarse crepitation, with occasional gurgling. At the end of April, this double ronchus was evident in left side, first anteriorly, then posteriorly, through almost the whole extent of chest; this continued until death. There were from time to time pains in the left shoulder, right side of chest, and larynx. Heat of surface much elevated; copious night sweats; rigors rare, and from the end of April, pulse was rapid.

There was a variably intense but constant headache; and from the 20th to the 25th of April she complained of continual tendency to drowsiness. These symptoms disappeared spontaneously. Slight delirium during the last twenty-four hours; gradual loss of strength; and she was wholly confined to her bed after the middle of April. On the 18th March, nine leeches were applied to labiæ; a mucilaginous mixture, with a grain of opium, was almost constantly prescribed; the diarrhœa was treated by the white decoction and diascordium; the food was limited to some rice creams, and for the last six weeks scarcely any thing was taken.

Sectio Thirty Hours after Death.

Exterior.—Extreme emaciation; no œdema.

Head.—A very small quantity of fluid in lateral ventricles, without other alteration either of brain or membranes.

Neck.—Larynx and epiglottis natural; mucous membrane of trachea of a bright red inferiorly; otherwise healthy.

Thorax.—Summit of right lung adherent; the left perfectly free; both lungs voluminous, of a light pink colour, becoming deeper posteriorly. The upper lobe of left lung was indurated, with some yellow coloured elevations on its surface, corresponding to small tuberculous excavations, separated by a very thin layer from the pleura; the whole lobe was converted into half filled tuberculous cavities, separated by the grey semi-transparent matter, or the red, granulated, hepatized lung. At the summit there was a middle-sized excavation, communicating with numerous dilated bronchial ramifications. The lower lobe was slightly congested, easily torn, and interspersed with tubercles. In the summit of right lung there was a very large excavation; the remainder of the lobe presented a mixture of grey matter, tubercles, and healthy structure. The bronchi were red, and not thickened; the bronchial glands voluminous, but not tuberculated; heart and aorta natural.

Abdomen.—Stomach rather smaller than usual, containing a little yellowish fluid. Its lining membrane was white, smooth, and near the pylorus covered with a thick mucus. With the exception of this region, and a small portion of the great cul de sac, it presented from seventy to eighty ulcerations, from one to two lines in diameter. Its destruction in the corresponding points was not always complete; it was sometimes only thinned, giving the appearance of bands of one or two lines wide. In the intervals it was pale, and of normal thickness and consistence. The mucous membrane of small intestine was healthy. That of the cœcum was red, softened, and thickened here and there. In the colon it was only rather softer than natural. No alteration of the mesenteric and meso-colic glands. The liver was pale, rather soft, of usual dimensions; uterus one inch wide, and five lines thick; the other viscera healthy.

337. In the majority of cases where the mucous membrane of stomach is ulcerated, it is more or less thickened or granulated in the intervals, but in this example no such alteration was observed; the ulcerations seemed artificially produced, and had they not been present, we might have said the membrane was quite healthy. At the same time the gastric symptoms were severe, and there could be no doubt of a more or less serous lesion of the mucous membrane; there was no epigastric *pain*, but the nausea and vomiting were present long before death, continued to the last, and notwithstanding its slow progress, the affection was always unmasked.

338. The healthy condition of the mucous membrane of the small intestine must not escape attention, that of the colon

was only slightly softened, while the diarrhœa had persisted several months. It is probable that, under these circumstances, it depended on a modified secretion, caused by inflammation.

339. When the only lesion of the gastric mucous membrane was the *mamillated state*, we have not been able to detect any symptoms by which it might be recognized. In some cases the appetite was diminished from the commencement; in others from the middle of the disease; and more rarely it continued good to the last. A small number presented, with considerable intervals, nausea and vomitings; in only one instance were epigastric pains complained of. In three others this region was rather sensible to pressure; but this slight sensibility is often present in acute catarrh, when the cough is frequent, and the stomach healthy; it might therefore in this instance have been caused by the cough, and on that account cannot be relied on as a symptom.

340. We have compared the above symptoms with those experienced by patients, *whose gastric mucous membrane presented no alteration*, either as to colour, consistence, or thickness, and no difference was observable. In either the anorexia had commenced at very variable periods; some of the latter had also nausea and vomiting at distant intervals.

The loss of appetite in cases where the mucous membrane of stomach was healthy, proves that anorexia, when even protracted, is not sufficient to determine the presence of gastritis; when not accompanied with pain, nausea, and vomitings, it aids little in the diagnosis, and is another instance (259), where a function may be for a long time deranged, without any appreciable alteration of structure in the organ which discharges it. Besides, if the mamillated state of the mucous membrane be the result, as we believe it is, of very chronic inflammation, we can perceive the difficulty of recognizing its symptoms, when we know that deranged function may be present without any sensible alteration of the membrane. This would not perhaps be the case were there no coexisting complication; at least we may presume so, from what occurred in Observation 22.

341. When the *gastric mucous membrane was more or less red in its whole extent, without any alteration of thickness or consistence*, we have only observed distinct symptoms (as epigastric pains and nauseæ) a few days before death; symp-

toms which indicated recent inflammation, and this was verified by the nature of the appearances after death.

342. From what has preceded, we may conclude, that the greater number of the morbid conditions of the stomach are characterised by peculiar symptoms. When it was thinned and softened, loss of appetite, nausea, bilious vomitings, epigastric pains, were almost constantly present, and generally persisting, some time before death. When the inflammation was confined to the *anterior surface* of the stomach, the symptoms were less urgent, less numerous, and of shorter duration; the loss of appetite was more or less considerable, there were nausea and epigastric pains, though not violent, and in one-fourth of the cases, vomiting. The same symptoms were observed when the ulcerations were large, or when they were small and numerous. When the inflammation was confined to the *great cul de sac*, there were no vomitings; nausea and epigastric pains were seldom observed; this frequent absence of symptoms made us conclude that this inflammation came on towards the close of the disease, and perhaps, like pneumonia and pleurisy, in the last twenty-four or forty-eight hours.

Finally, no symptom positively indicated the mamillated state of the mucous membrane, and when it was universally red without other alteration, a very few patients experienced nausea and epigastric pains two or three days before death.

This simple statement of facts points out, we think, very clearly in what light we ought to regard vomitings which occur in the progress of phthisis, vomitings which have hitherto been classed among the symptoms of the disease. When they have been preceded during a certain time by more or less anorexia, and accompanied with epigastric pains, they are generally indicative of a very serious alteration of the mucous membrane of the stomach; and this union of symptoms is what we most generally observed. Vomitings can be much less frequently attributed to the cough; and in these cases, there is no epigastric pain, the appetite is good, the digestion easy, and they occur at the commencement of the disease; but when resulting from organic alteration they are almost invariably confined to a more or less advanced period of the affection.

But here, as in a thousand other circumstances, there are facts which defy the sagacity of the observer, and seem exceptions to general laws. One of our patients, for instance, presented shortly before death, pains in the epigastrium, nausea, and vomitings, either during the cough or in its intervals, while the gastric mucous membrane was perfectly healthy.

343. To conclude our remarks on the state of this membrane in cases of phthisis, we shall relate two facts, one of which seems an instance of chronic gastritis, with an ulceration, as if cicatrised; the other an example of complete destruction of the muscular tunic, while the corresponding mucous and submucous layers were unaffected.

OBSERVATION XXII.

A shoemaker, aged 30, of middle height, rather delicate constitution, addicted to onanism from an early age, entered the hospital of La Charité, 12th July, 1824. Enjoyed habitually good health; had never been seriously ill; was not liable to cold. He dated his present illness a year and a half ago, had ceased his occupation five months, and attributed his indisposition to great grief at the loss of his savings. He was first attacked by slight diarrhœa, accompanied with almost complete anorexia. These symptoms continued without variation during eleven months, with only slight epigastric pains, but without fever, nausea, or vomitings. After this period he was seized, without evident cause, in the middle of the night, with a copious hæmoptysis, which returned on the two following days, and seemed at length to yield to strongly acidulated drinks. At the same time there was cough, expectoration, and dyspnœa, with vomitings after the cough; since this period the diarrhœa ceased; soon after the appetite returned, and during the four last months there were night perspirations, with occasional rigors. Had never experienced pains in the chest. July 13.—General paleness of surface, great debility; pain in the limbs; variable state of thirst; tongue natural; no tenderness in epigastrium; daily stools of natural firmness. Pulse small and weak, slightly accelerated; heat moderate, with evening exacerbation; night sweats. Respiration loud and almost cavernous round the summit of left lung; natural and free from ronchus everywhere else; speaks hurriedly; slight dyspnœa; sputa greenish, in small irregular masses, and scanty.

Considerable emaciation.—(℞ Decoction of lichen; mucilaginous mixture, julep; one-fourth of house allowance.)

Up to the 8th of August there were neither nausea nor vomiting; the appetite improved and the digestion was easy; constant increase of heat in the evening with occasional perspirations during the night; diminution of dyspnœa, but great debility.

The patient having quitted the hospital at this period, on the following day there was great increase of cough, renewal of the vomitings and loss of appetite. This compelled him to re-enter, and from the 10th of August to the 2d of November, the following is the result of our observations:—Cessation of vomitings, and no subsequent recurrence; the appetite continued depressed during some days, but soon after was as good as in the report of 8th August; after the invasion of diarrhœa on the 2d October, it diminished, and continued inconsiderable to the last. There was no epigastric suffering, and the looseness which was at first violent, with great prostration and rapid pulse, quickly diminished. The tongue was always red, and rather livid; the heat of surface increased in the evening and during night; very rarely there were perspirations and rigors.

Sept. 22.—Percussion under left clavicle dull; this gradually extended, and in the middle of October there was everywhere loss of sound anteriorly on the same side. The respiration under both clavicles was tracheal, and was soon followed by cavernous ronchus.

There was sudden increase of the prostration on the 1st of November, and on the 2d, at 5, p. m., the patient expired.

While the diarrhœa persisted, rice water was prescribed, and afterwards the infusion of violets. During the last month, he only took a little soup and some rice creams.

Sectio Forty Hours after Death.

Exterior.—Extreme emaciation.

Head.—Slight sub-arachnoidien infiltration; a spoonful of fluid in each lateral ventricle, rather less at the base of skull; brain soft and injected.

Neck.—Epiglottis natural. Larynx pale, with two superficial ulcerations, one at the reunion and the other on the left of the cordæ vocales. Tracheal mucous membrane rather red, with numerous ulcerations of a line in diameter, without any thickening of the membrane either around them, or in their intervals. Some similar ulcerations in the left bronchi.

Thorax.—Slight adhesions at the summit of both lungs. The upper lobe on left side presented two large excavations, lined by a greyish semi-cartilaginous membrane, filled with a greenish matter, analogous to what existed in the bronchi; the remainder of the lobe was converted into a greyish semi-transparent substance, containing numerous half-filled small excavations, many of which were only separated from the pleura by an extremely thin layer.

In the summit of the lower lobe there was a small quantity of grey semi-transparent matter, interspersed with tubercles. In the right lung the lesions were of a similar description, but less extensive. Heart healthy; numerous cartilaginous spots in the interior of aorta.

Abdomen.—Stomach of moderate volume, rather contracted at the centre. Its mucous membrane of a tawny colour in the left extremity, more or less greyish elsewhere; this last tint was interrupted by some whitish coloured spots, from one to two lines in diameter, where the membrane was evidently thinned. One of these, of a very light grey, was seven lines long and five wide, situated posteriorly near the small curvature, and half way between the cardia and pylorus. The mucous membrane seemed insensibly to terminate at its circumference, after having gradually decreased in thickness over an inch and a half of surface. This termination was the more indistinct, on account of the colour of the mucous membrane being similar to that of the spot we have described, which was itself formed by the sub-mucous layer; so that after having removed all the mucous membrane, the stomach was white with the exception of this spot. The latter was also circumscribed by a flattened ring formed by the adhesion of the sub-mucous layer to the subjacent muscular tunic. The consistence of the mucous membrane, where thinned, was rather diminished. The muscular coat presented no alteration.

T[illegible] lining membrane of small intestine was of normal consistence and thickness, and offered numerous narrow transverse ulcerations in the three upper fourths, and in the lower portion pretty numerous yellowish granulations, of tuberculous appearance, of the size of a pea or smaller, and ulcerated at their summit. There were numerous ulcerations in the large intestine, from one to two inches in surface; smaller in the rectum than elsewhere. The greater number were ragged, from the presence of the denuded fibres of the muscular coat, which were half a line thick; around them the mucous membrane was red and thickened without other alteration. The meso-colic glands, about the size of a pea, were tuberculated and firm; those of the mesentery were unaltered. There was only one kidney; it was situated to the right, nearly twice the usual volume, with two fissures, one anterior, the other at its internal edge, and two small pelves which terminated after a short distance in a single ureter.

344. The loss of appetite experienced by the patient eleven months before the accession of cough, when, as far as we can judge, no tuberculous affection existed, is no doubt to be ascribed to a chronic inflammation of the mucous membrane of the stomach, of which the diminished consistence and partial destruction were the consequence. In general, when a certain portion of this membrane is destroyed, the adjacent parts are natural, or at least offer neither increase or diminution of thickness; the lining sub-mucous layer presents no change of colour, but is occasionally a little thickened or partially destroyed, as we have already seen in Observation 38; it also does not form any elevated boundary round the mucous membrane. The difference between these characters and those of the ulceration just described, does it not prove, when connected with the history of the symptoms, that there had been a very chronic gastritis, with ulceration of the mucous membrane in a state of partial cicatrisation? It may perhaps be argued, that were this the case, the mucous membrane would have reached beyond the indurated and circumscribed boundary; we can only say that, in the few examples we possess of distinct cicatrisation in the small intestine, the mucous membrane never extended beyond the circumference of the ulceration.

OBSERVATION XXIII.

345. A woman, aged 49, a gold wire drawer, of weak constitution, seldom liable to cold, entered the hospital of La Charité, 13th July, 1824. She had been ill a year, and had ceased her business five weeks. At the commencement, general uneasiness, sense of lassitude, partial loss of appetite, and emaciation. In the fifth month, cough, expectoration, and dyspnœa (which afterwards continued) were conjoined with the previous symptoms; during the last month complete loss of appetite and diarrhœa. In the fourth month, pains and pricking sensations in the right side of chest, which have been more or less urgent ever since. No hæmoptysis, night perspirations, or epigastric pains, and she was very rarely sensible of rigors.

July 14.—Considerable debility; extreme emaciation; some œdema of the legs. Tongue a little red at the point; mouth clammy, and with occasional bitter taste; thirst variable; very little appetite; marked resistance to the hand in the epigastric region and below the right false ribs, for a height of three inches; no pain in the corresponding parts; epigastric pulsation the last few days; one liquid stool and slight tension in the hypogastric region. Cough is troublesome in the morning, with some greenish and opaque sputa; on the right side and anteriorly there was dulness on percussion; the same was observed in the corresponding point posteriorly. Respiration cavernous under the right clavicle with tracheal ronchus and pectoriloquy over a considerable extent; the decubitus on the right side, provoked cough and increased the dyspnœa. Pulse rather full and quick.—(℞ Rice water with quince syrup; mucilaginous mixture; three rice creams.)

The anorexia continued, the diarrhœa increased—became copious, and then entirely ceased after the beginning of August. There were neither nausea, vomiting, or epigastric pains. The hypogastrium was the seat of a very troublesome sensation of weight, principally felt after food, which sometimes consisted of an egg and a small quantity of bread; there was slight tympanitis. The stools became very frequent and offensive the last four days, and at 9, a. m., of the 17th August, the patient expired.

During the thirty-three days in which we observed this patient, the state of the tongue was variable; its colour, though usually natural, was at times more or less red, without any accompanying change in the functions of the stomach and intestines. The heat was elevated in the evening; there were no perspirations, and the results of the examination of the chest were nearly the same as at the first. Diascordium, with a grain of opium, was prescribed when the diarrhœa was urgent.

Sectio Twenty-three Hours after Death.

Exterior.—Extreme emaciation.

Head.—A small spoonful of fluid on the upper surface of the arachnoid, some slight emphysema between this membrane and the pia mater without infiltration. A spoonful of fluid in each lateral ventricle; the base of brain less firm than the upper portions. The tuber-annulare and the spinal marrow were still more softened. Three spoonfuls of slightly frothy fluid in the lower portion of vertebral canal.

Neck.—Epiglottis, larynx, and trachea healthy.

Thorax.—Left lung without adhesions; its upper lobe was nodulated, with numerous granulations softened or crude tubercles, placed very superficially; these were numerous internally, very few existed in the lower lobe. The *right lung* was universally adherent to the costal pleura, by means of a semi-cartilaginous false membrane. At the summit of the upper lobe there was a vast anfractuous excavation, lined by a very dense greyish false membrane, half a line thick, inclosing a greenish substance streaked with blood, and intersected by some short interrupted bands. In the remainder of its extent, the upper lobe was indurated and transformed superiorly into a dark homogeneous, greyish, non-elastic substance, more or less transparent inferiorly; it was crossed by irregular semi-cartilaginous bands, and contained either softened tubercles or small excavations. The bronchi were thickened, more dilated and redder superiorly on the right than on the left side. The heart was small but healthy; there were numerous yellowish patches throughout the whole aorta.

Abdomen.—The peritoneal cavity contained a pint and a half of fluid. The liver descended four inches below the ribs, extending as far as the iliac crest; its structure was firm and brittle. The gall-bladder contained a very dark coloured viscous fluid. The stomach was small and closely adherent by part of its posterior surface, to the pancreas, the tissue of which was indurated, the mucous membrane presented a greyish pink tinge, everywhere mamillated and rather thickened, with diminished consistence in the large curvature, and covered with a copious and viscous mucus. Near the small curvature between the cardiac and pyloric orifices, and in the portion adhering to the pancreas, there was a slight depression, about the size of a crown, round which the mucous membrane was a little corrugated. In the depressed portion it was very thin and brittle, but not mamillated; the corresponding cellular layer was healthy; the muscular membrane was destroyed and replaced by a white, semi-cartilaginous tissue, about half a line thick, in which the fleshy fibres terminated. These were still thicker at the point of junction, for a space of four lines, but were not otherwise modified; the sub-mucous layer was indurated and thickened in the same extent. The small intestine contained a greyish tenacious substance, with a faint odour; its lining membrane was a little softened, presenting throughout numerous small ulcerations, many of which were in the centre of the glandular patches. Similar ulcerations existed through the whole of the large intestine as far as the anus; they were lined by the slightly thickened sub-mucous tissue. In their intervals the membrane was soft as mucus, and twice its usual thickness; it was everywhere in contact with a greyish reddish fluid substance. The mesenteric and meso-colic glands rather voluminous, but healthy. Spleen small, as firm as the liver. Urinary apparatus natural.

346. The state of the gastric mucous membrane, grey and mamillated throughout its whole extent, thinned in one point while it was thickened elsewhere, and the decrease of appetite long anterior to the invasion of phthisis, render this observation very analogous to the preceding, and prove the existence of a chronic gastritis, for a long period without other complication. In this respect the fact is one of great interest, as it shows, what as yet we have only ventured to intimate, that the mamillated state of the mucous membrane of the stomach is the result of a chronic affection, characterised by very obscure

symptoms. Hitherto we have never observed this condition isolated from more or less numerous complications, and since in these cases the gastric symptoms closely resembled those we observe when the stomach is healthy (339, 340), it was impossible to know to what they might be referred. The observation before us proves, more evidently, that the symptoms are exceedingly obscure, and no doubt confined in the majority of instances to a greater or less diminution of appetite with difficult digestion. We do not say this is *always* the case, for we have had examples when this condition of the membrane was combined with redness, and there were occasional nausea and epigastric pains.—(90, 326.)

The partial transformation of the muscular coat, into a semi-cartilaginous substance, is equally worthy of our attention. Without conjecturing when this might have taken place, or the exact cause which produced it, we shall only remark that we have lately met with a very analogous fact; but, instead of the semi-cartilaginous transformation, the muscular tunic was here converted into a fibrous tissue about half a line thick. The corresponding cellular layer was more or less thickened

§ 5.—*State of the Tongue.*

347. It is proper, after having studied the symptoms which correspond to the different conditions of the gastric mucous membrane, to investigate whether there is not some dependance between these conditions and the state of the tongue. The following is the result of our inquiry:—Out of nineteen cases with softening and diminished thickness of the mucous membrane of the stomach, in nine, the tongue, which was always moist, never presented at any period of the affection distinct redness; and out of ten others, it was red at the point and edges in four, during fifteen or twenty days; while in the remaining six, this was the case for a very limited period, only two or three days.

348. In eight examples where the inflammation was confined to the anterior part of the gastric mucous membrane, in half, the tongue was red. In one, the redness was very transitory.

349. When the inflammation occupied the totality or a portion of the left extremity of the stomach (in which case, as we

have remarked, it probably dated but a few days before death), the tongue was natural in ten instances; while in seven others it was more or less red on the edges, either very shortly before the fatal termination, or during a few days only, at some earlier period.

350. In patients where the mucous membrane was evidently mamillated, the tongue was more or less red during a variable space of time in eight out of nineteen; in the remainder it was natural. In six out of fourteen other examples, where the gastric mucous membrane presented a variety of morbid alterations, the tongue was redder than natural for one or more weeks.

351. Lastly, where the mucous membrane was healthy, both as to colour, consistence, and thickness, the tongue was more or less red, in ten out of nineteen; and in one of these the redness persisted during the whole course of the disease, and was more intense than in any of the preceding instances; the tongue also at one period becoming dry, as we occasionally see it in continued fever. The observation is sufficiently interesting to be detailed.

OBSERVATION XXIV.

A waggoner, aged 25, of tolerably strong constitution, had been ill three weeks when he was admitted into the hospital of La Charité; said that seven months previously he had been attacked with continued fever, which lasted five weeks, but had not been accompanied with diarrhœa; his convalescence was rapid and complete; his digestion had been easy and regular, and the appetite excellent up to the period of his present illness. During the first eight days of this last affection, he had complained of uneasiness, loss of appetite, thirst, slight cough, and inaptitude for exertion; this was followed by increased heat without rigors, night perspirations, intense thirst, complete anorexia, increased cough, pains under the sternum, throbbing in the ears on assuming the vertical position, and confinement to his bed. Leeches were applied to the epigastrium (where no pain had been experienced), without the slightest relief to any of the symptoms.

On the 3d of August, 1824, the day after admission, his state was the following:—Face rather animated, complains much of weakness; tongue, dry, shining, of a bright red on the edges, yellowish, moist, and coated in the middle; urgent thirst, anorexia, bitter taste in mouth, no pain in epigastrium; the whole of abdomen is insensible to strong pressure; constipation. Pulse 65, full; heat elevated; breathing not accelerated, no ronchus in any part of chest; the cough causes pain under the sternum; expectoration scanty, spumous; position in bed natural; slight general uneasiness.—(Lemonade; an emollient enema; and diet.)

On the following days the tongue was moist, clean, and intensely red; there were one or two liquid stools in the twenty-four hours; the anorexia continued, and lemonade appearing to produce some uneasiness in the epigastrium, it was changed for a sweetened solution with vinegar; pulse slower than at first. 11th.—No change in the state of tongue or digestive tube; the solution of oxymel was not supported better than the lemonade; the patient vomited a little bile. His only complaint was of the chest, at the posterior part of which on the right side, there was slight sonorous ronchus. —(Solution of gum syrup.)

Until the 8th of September, when death took place, the thirst was more or less urgent, anorexia constant, no pain in epigastrium; some bile was vomited on the 22d, 29th, and 30th of August. The tongue presented some variations. On the 16th it was of a deep red colour and rather dry; on the 28th it offered the same aspect with the addition of some small white apthous patches round the edges: it was unusually red on the 1st of September, perfectly clean and pointed. This redness daily increased, and on the 5th was associated with dryness and augmented thickness, which continued to the last. The stools became rare; during the last eight days there was some diarrhœa and tympanitis. 16th of August.—Increased oppression. 21st.—The pain in chest, cough and dyspnœa continued stationary, the respiratory murmur was weaker anteriorly on the left side than on the right, expectoration scanty, rather greenish and opaque; this continued to the last. The pulse, which was almost natural on the 25th of August, was 85 on the 28th: there was proportionate increase of temperature, which afterwards continued. From the 28th of August, rapid increase of weakness and emaciation, and soon after the patient was unable to leave his bed. He expired with very little suffering, and no delirium, at 4, p. m.

The solution of gum syrup was continued with emollient enemas. On the 16th of August and 3d of September leeches were applied to the anus without any advantage.

Sectio Sixteen Hours after Death.

Exterior.—Extreme emaciation.

Head.—Slight sub-arachnoidien infiltration; brain rather vascular; a spoonful of fluid in each lateral ventricle, and also at the base of skull.

Neck.—Epiglottis, larynx and trachea natural.

Chest.—Cellular adhesions over the greater part of lungs. The upper lobes contained numerous softened tubercles, especially on the right side and posteriorly; in other parts they were not softened. The substance of the lung surrounding them seemed everywhere healthy, and there were no grey semi-transparent granulations. Bronchi thin, and of a pale pink colour; heart and aorta natural.

Abdomen.—Stomach small, with numerous valvular folds internally. Lining membrane, villous, pale, not in the least injected, and everywhere of normal thickness and consistence. The same paleness and healthy state of mucous membrane existed throughout the whole of the small intestine, with the exception of a small, very pale ulceration, about twelve inches from the cœcum. The lining membrane of large intestine was white, of natural thickness and consistence, except in the last two feet, where it was of a livid red, softened, and with numerous small ulcerations, at the centre of which was a small coagulum of dark coloured blood. The mesentery consisted of an irregular flattened mass, of about an inch thick and at least thirty inches in superficies, formed by the reunion of completely tuberculated mesenteric glands, as large as a chesnut or smaller. Many of the lumbar glands had partially undergone the same transformation. The pancreas was harder and whiter than natural; the other viscera healthy.

352. The absence of epigastric pain in a case where the progress of the symptoms had been tolerably rapid, and the intellectual faculties unaffected, made us relinquish the idea of

gastritis, and having merely some suspicions of the state of the lungs, we were unable to form any rigorous conclu[illegible] to the nature of the disease; but the gradual emaciation, the redness and dryness of the tongue, the persistence and increase of the same symptoms, made us believe that the disease was, and would shortly prove to be, fatal in its nature. As in many other instances, the condition of the tongue was useful for our *prognosis, and we think, that its value as a symptom is almost wholly confined to this indication.* At least, after the facts we have related, it must appear evident that there is no real relation between the state of the tongue and that of the stomach; for if it is sometimes red in gastritis, it is still more frequently pale; and on the other hand, it is sometimes dry, hard, and intensely red, when the gastric mucous membrane is healthy.

These facts, indeed, ought not to excite any surprise, as they simply prove that the tongue is no exception to the general laws of the system, which would be the case did it either constantly or solely indicate the condition of the gastric mucous membrane. In fact, whenever there is febrile movement, the whole system more or less participates; the appetite ceases, the skin becomes hot, moist, and frequently coloured; the secretions are modified, the urine is red, scalding, &c. &c. Why should the tongue remain unaffected by these changes? Why should it not become more or less red, dry, moist, clean, or coated? *

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* Perhaps there never was an opinion in medicine more generally adopted, than that the state of tongue was indicative of that of the stomach, and yet when brought to the test of accurate observation, its fallacy is at once detected, and the inaccuracy of experience demonstrated. The results of our author are not peculiar to himself, though perhaps the evidence he adduces is as yet the most incontestable. Dr. Stokes, in his second lecture during the session of 1832-3, says, "the tongue is only useful as an index of the *general state* of the system, and not of the *stomach.*" Dr. Piorry, in an interesting memoir on this subject, (Vide *Collection de Memoires sur la Physiologie, la Pathologie et le Diagnostic,* par M. Piorry. Paris, 1831), concludes—First, That the redness of the tongue depends on the *volume* and *rapidity* of the circulation. Secondly, That in many instances it is no indication either of gastritis or gastro-enteritis. Thirdly, That redness of the tongue frequently accompanies *thoracic disease.* Fourthly, That the limited appearance of the redness is owing to the unequal distribution of the deposit on its surface; remove

From the first, the anorexia was complete; and this fact is still [illegible]markable, since not only was the gastric lining membrane healthy, but there was scarcely any febrile excitement present; this proves that loss of appetite may exist without fever or any sensible alteration of the mucous membrane of the stomach.

353. With the exception of a very small ulceration, the mucous membrane of the small intestine was healthy, while the whole of the mesentery was transformed into tuberculous matter. Are we not compelled to admit that this transformation was quite independent of inflammation of the intestinal mucous membrane?—(151.)

354. In some instances the tongue was the seat of an *albuminous exudation*, which deserves more attention than mere redness. This exudation was developed towards the close of the disease, four, eight, ten, and even sixty days before death; it sometimes presented the form of patches from two to three lines in surface, which occasionally by their reunion completely covered the tongue; at others, it assumed the form of small points more or less thickly scattered, with destruction of the corresponding mucous membrane. The exudation was easily removed, was about half a line thick, and generally reappeared several times before death. In the majority of instances it was simultaneously present on the tongue, lips, cheeks, gums, and occasionally on the palate. Almost invariably there were prickings in the tongue, with sense of heat and redness; the mucous membrane was, however, in some cases, pale immediately beneath the exudation.

355. The redness, heat, prickings with the albuminous

this, and it becomes general. Fifthly, That the evaporation of the saliva and the secreted fluids, on the surface of the tongue, is the principal cause of its dryness. Sixthly, That this dryness is rather depending on the state of the *thorax*, than of the *digestive tube*. Seventhly, That the deposits on the tongue and teeth in cases of fever, are the result of the desiccation of the saliva, which is itself modified by the state of the system generally.

We refer the reader to M. Louis's work on the *Affection Typhoide*, (vol. ii., p. 64), for additional evidence on this subject. The author's conclusions exactly coincide with those he has advanced in the present volume. (Translator.)

nature of the secretion,* distinctly point out an inflammation of the mucous membrane of the tongue. We ha[illegible]er just remarked, that it was occasionally pale beneath the patches and in their intervals, and this is difficult to reconcile with inflammation in an organ so vascular as the tongue. Is it a [illegible]ct, that the albuminous false membranes are not always depending on inflammatory action, and that they may be regarded under certain circumstances, as resulting from an alteration in secretion not produced by inflammation? This question is very difficult satisfactorily to answer, but after the fact we have stated, the enquiry is natural. The investigation of causes seldom leads us to any useful result, but as the anatomical characters of inflammation are frequently obscure, it is we think right to note scrupulously every thing that may relate to it.

356. It is however quite impossible to doubt, that the exudation in question is, in the immense majority of cases, the product of inflammation, and it thus forms an additional fact to what we have said on the frequency of inflammation towards the close of chronic diseases.†

357. The state of the tongue we have been describing, did not depend on the condition of the gastric mucous membrane, any more than simple redness. We have observed it in one-eighth of our cases; three times, when there was softening and diminished thickness of the lining membrane of the stomach; four times, when the inflammation was bounded to its anterior surface; three times, when it was perfectly healthy, and twice among the remainder.‡

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* See the *Inaugural Dissertation* of M. Blache. Paris, 1824. (Author.)

† See the Summary of the first part of this work. (Author.)

‡ M. Louis has found this exudation equally frequent towards the close of acute as well as of chronic diseases. It has generally been classed among the fatal symptoms, but M. Louis has seen it almost as often in cases which recovered, as under the opposite circumstances. Its indications seem rather those of general weakness, than of any particular termination. (Translator.)

CHAPTER VI.

FUNCTIONS OF THE GENITAL ORGANS.

§ 1.—*Generative Functions in Men.*

358. We have frequently interrogated phthisical patients as to their tendency to sexual intercourse, and in every instance this tendency has appeared to have declined with the increase of general weakness and other symptoms, almost exactly as is the case with individuals labouring under any other affection. It is however possible that, at the very commencement of the tuberculous affection, when there is little diminution of strength, though sufficient to prevent the patients continuing their usual occupations, that there should be a more evident inclination to sexual pleasures than when in perfect health; but this is easily accounted for by the effect of idleness upon the mind, which is then much more under the influence of every impression. It would indeed be very singular that when all other functions are deteriorated, that the generative should assume unwonted activity; an additional reason not to admit so commonly received an opinion, without undeniable proof.*

§ 2.—*Generative Functions in Women.*

359. The catamenia were almost invariably suppressed sooner or later in phthisis. Once only they continued until death, but were irregular, scanty, and for the last three months recurred every ten days. This patient was ill nine months and a half, and during the whole time *did not expectorate*; after death, we found numerous excavations in the lungs; the uterus was small and healthy. In other instances the menses, previous to their total suppression, were more or less irregular, either as to quantity or their periods of recurrence; and, with the exception of diminished volume, the uterus was always perfectly healthy. This fact is again in favour of what we have more than once insisted on (259, 340), that functional derangement

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* M. Louis has since continued his investigations on the state of the genital organs in phthisis, and has in no instance discovered any evidence of their increased activity. Vide *Examen*, p. 45. (Translator.)

does not necessarily suppose any appreciable organic alteration.*

360. When the duration of phthisis was less than one year, the average period of the catamenial suppression was about the middle of its progress. When the affection was prolonged from one to three years, the suppression occurred during the last third. But, to have a just idea of the value of this symptom, it is necessary to state the limits of its variations. Thus, a young woman, in whom the disease lasted three years, the catamenia ceased after the thirteenth month; while another individual of the same age, and where the duration of the disease was similar, continued to menstruate to within two months of the fatal termination.

When the progress of phthisis was chronic, we could not detect any cause on which the catamenial suppression depended;

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* As the uterine functions are *usually* depending more on the general state of the system than on that of the uterus itself, their irregularity in a disease like phthisis must be regarded as an indication of some general condition of the constitution, and not of any local disease of the uterus. Menstruation is not a *necessary*, but an *accidental* function; and when interrupted by disease, the organ which discharges it may remain indefinitely free from organic lesions, as is actually the case both before and after the menstrual period. The same mode of reasoning may we think be applied to the skin, which, as the author has remarked, may be the seat of profuse perspiration for an indefinite period, without presenting any appreciable change of structure. The secretions on the surface of the skin are no doubt intimately dependent on the state of the circulation, respiration, temperature, &c., and we think in many cases they are to be regarded as purely physical effects of simple exudation, either from an engorged state of the capillaries, diminished tone of the solids, or increased fluidity in the blood. Neither of these examples are we think of much weight in favour of the opinion they are intended to support, and ought not to invalidate the generally received opinion, that long continued functional derangement implies organic disease. Let it be recollected that prolonged functional disorder is never confined to a simple increase or decrease of what is natural, but is invariably attended by a change in *quality* as well as quantity. The latter is necessarily dependent on adventitious circumstances, and is often no criterion of the state of the organ itself; the former may occasionally be so, but is much more frequently to be traced to organic alteration. The relation between the secretion of an organ and its organic structure would be an interesting and difficult subject of inquiry. There can be no doubt that important changes in the former may take place, when no organic lesions can be detected. (Translator.)

but when the duration of phthisis was less than twelve months, in the majority of instances, the suppression coincided with the invasion of fever; i. e., corresponded to the period when the influence of the principal affection became general.

361. The uterine function having in some instances persisted, with little variation, till within a month before death, we can easily understand how pregnancy can take place, and go through its usual periods in the course of phthisis; of this we have observed two examples.

The most remarkable instance is that of a woman who died when in the last stage of emaciation, after having, twenty days previously, given birth to a robust child. Her lungs presented numerous excavations.

362. We have not been able to decide whether pregnancy is capable of retarding the progress of phthisis; it is indeed evident that numerous facts are required, and several years of observations in a lying-in hospital, before we can have any positive information on the subject. We may however observe, that perhaps there has been some error and confusion among those who have hitherto admitted such an influence. It is indeed possible, that many of the symptoms of phthisis were less prominent during pregnancy, while the progress of the disease was really unaffected. On the other hand, it is not impossible that, after labour, the progress of phthisis should be accelerated; and this may, to a certain extent, have given rise to the impression. Is it probable that pregnancy, itself a cause of dyspnœa, should procrastinate the duration of phthisis, in which dyspnœa is always a more or less troublesome symptom whenever the patient uses any exertion

CHAPTER VII.

CEREBRAL SYMPTOMS.

363. In nearly every case the intellectual faculties were undisturbed to the last. In the instances where we have found partial and pulpy softening of the brain, with traces of inflammation of the lining membrane of the lateral ventricles or the sub-

jacent tissue, the cerebral symptoms shortly before death were very remarkable. They were absent in three out of six cases, where there was pulpy softening; we have observed them in one case of arachnitis, which we shall now detail.

Observation XXV.

A porter, aged 44, was admitted into La Charité, 6th May, 1824. He had been a prisoner in England for fifteen years, four of which were spent in the hulks; had coughed and expectorated the last twenty years; was attacked with hæmoptysis for the first time in January of the present year; had been liable to oppression in his breathing the last six years, with universal swelling of the whole body during the winter, which lasted about six weeks. The appetite had not failed, till within the last month, when he began taking some empirical medicine. This produced a violent diarrhœa, for the relief of which he entered the hospital.

Face with a slight yellow tinge; no headache; cough rare; very little oppression; expectoration rather copious, not striated, a little spumous; no pain in chest, nor had he ever experienced any; percussion everywhere clear, except under the right clavicle, and for some distance from above downwards; cavernous respiration and pectoriloquy in the same region, and posteriorly between the shoulders; a very coarse ronchus, diminishing from the summit to the base of either lung; considerable hoarseness, with alteration of the voice the last six months; no pain in the larynx; pulse 64; heat natural; tongue moist, rather red on edges; mouth clammy; no appetite; pain in epigastrium immediately below the xyphoid cartilage, either from pressure or cough; the remainder of abdomen yielding, and not painful; two liquid stools the previous evening.

On the next day, considerable diarrhœa; from eight to ten stools. On the 22d, almost constant drowsiness; intelligence rather confused; no complaint of pain.

In the night of the 22d, some involuntary stools; the patient did not reply to questions, but tried to get up, saying he was going home, and in the attempt was unable to support himself. At 7 in the morning, the expression was stupid, eyes fixed, pupils contracted; spasmodic action of masseter muscles, and those of right arm ; stiffness of left arm and leg, with expression of pain whenever any attempt was made to move them ; the patient was not quite unconscious, since he attempted to protrude the tongue when asked to do so; pulse 114; no change in the respiration. (Synapisms to the legs.)

At 8, a. m., he made an effort to speak, and uttered a few intelligible words ; the arms and neck were stiff, resisting any attempt to move them. The same symptoms continued during the day ; the breathing became oppressed in the night, and on the next day (24th), at 11, a. m., he expired.

Sectio Twenty-two Hours after Death.

Exterior.—Nothing remarkable.

Head.—Lacerations of dura mater, giving passage to some granulations springing from the arachnoid, covering the brain, which was opaque and thickened in the corresponding points. Two thin bony layers were embedded in the dura mater lying over the left hemisphere, near the falx. Considerable distention of cerebral veins, with sub-arachnoidien infiltration. Brain itself pale, not injected, of normal consistence. The right lateral ventricle. contained about two spoonsful and a half of turbid fluid, the left rather less ; there were three spoonsful of clear serosity in the lower occipital fossæ.

Neck.—Larynx and epiglottis natural ; lining membrane of trachea rather red above the bifurcation, elsewhere of normal colour, thickness, and consistence.

Thorax.—Some cellular adhesions on the summit of left lung ; two linear osseous concretions in the upper lobe ; slight engorgement at the centre of both lobes. Dense adhesions over the upper part of right lung, by means of a false semi-cartilaginous membrane, more or less thick. The summit was occupied by a rather large excavation ; lower down, there was a very small anfractuous cavity, where numerous semi-cartilaginous lines terminated, of a bluish colour, enclosing a greyish blackish matter, formed by the combination of the melanotic and grey semi-transparent substance ; this cavity was red, like the bronchi which opened into it. The remainder of the upper lobe was indurated and transformed into a grey substance, interspersed with minute tuberculous excavations. Some granulations of the same nature existed in the lower lobe, which was partially engorged, and presented at its superior portion a pretty large excavation, lined by a false membrane, and containing a thick red fluid. The bronchi communicating with the cavities were more or less red and thickened; the others were thin, and of a light pink colour. The heart was rounded at the apex, rather larger than usual, on account of the increased size of the left ventricle, the parietes of which were six lines thick; aorta healthy.

Abdomen.—Stomach of ordinary dimensions; its lining membrane of a bluish grey colour, except in the small curvature, where, for about one inch and a half, it was of a pale pink tint; thickness and consistence everywhere natural, except a very limited portion in the great curvature, which was softened, and easily torn; there was over its whole surface a layer of thick tenacious mucus. The mucous membrane of small intestine was sprinkled with numerous minute black points; in other respects healthy. That of the large intestine was soft as mucus, pale in the upper half, a little red in the lower, without ulcerations, and in contact with a turbid greyish pink substance. The mesentery and other viscera were healthy.

364. Although, in our description of the lateral ventricles, we have neglected to describe the state of the lining membrane, yet the nature of the contents sufficiently justify the idea that it was inflamed; the fever also and the cerebral symptoms, can scarcely be referred to any other lesion. The latter were in fact those of arachnitis; and we ought to remark that the weakness of the patient was no obstacle to their development. It is true that a very important symptom, viz. headache, was absent; (at least the patient never complained of pain in his head); but this might be owing to the rapid progress of the disease, which was fatal in forty-eight hours; its different periods were confounded together, and delirium with great drowsiness, were the first indications of its existence. We have already seen that the progress of inflammations occurring towards the close of chronic diseases, when the debility is far advanced, is rapid; and of this the present observation furnishes an additional proof. It is also remarkable that the alteration of the arachnoid was bounded to the portion of this membrane lining the lateral ventricles, which, in the opinion of

those authors who have most successfully studied this disease (Messrs. Parent and Martinet), is extremely rare.*

365. As to the origin of the tuberculous affection of the lungs, it was probably coincident with that of the cough; but of this we cannot be positive. What appears certain is, that the progress of the disease was extremely slow. This is proved both by the mildness of the symptoms and the undiminished strength, until the appetite began to fail.

366. The following observation is an example of partial softening of the brain, with inflammation of a small portion of the sub-arachnoidien tissue.

Observation XXVI.

A butcher's boy, aged 38, short, but stoutly made, black hair, brown skin, and of strong constitution, had been ill eight months when he entered the hospital of La Charité, 1st September, 1822. Usually in good health, he had not been liable to cold or sore throat; he attributed his present illness to a violent blow he had received on his chest shortly before the appearance of the first symptoms. At the commencement there was cough, with expectoration, and alternation of heat and cold; these symptoms continued, but after two months, the rigors almost ceased; he had only perspired the last fifteen days. The cough was generally violent, and the voice had been affected after the second month. At this period also he was attacked with a pretty copious hæmoptysis; this was afterwards renewed, but small in quantity, and at distant intervals. The appetite gradually diminished, and for the last three days the stools had been liquid, which he attributed to having eaten a large quantity of grapes. His strength failed, and for three months he had ceased his usual occupations, though he had never been confined to his bed. September 2.—No headache; cough not frequent; sputa greenish, opaque, most of them floating in a clear fluid; voice rough; percussion of chest clear on either side; a crepitating ronchus with obscure respiration under the right clavicle, without pectoriloquy. Pulse calm; heat natural; tongue clean; little appetite; deglutition easy; stools liquid, not numerous. No pain either in throat, larynx, or abdomen.—(℞ Decoction of rice water; mucilaginous mixture; a quarter of house allowance.)—But little change occurred on the following days. 28th.—Still no headache or pains in the limbs; percussion under right clavicle dull, with very obscure respiration, and more copious crepitation than before. Considerable resonance of voice in the corresponding point posteriorly; the anorexia and looseness had increased; there was a bad taste in the mouth, and pain in the epigastrium; this pain had lasted three days, and on the previous evening the patient had vomited a little bile. He complained of a twisting sensation in the hypogastrium, and the abdomen was tympanitic.—(℞ Decoction of rice water with quince syrup; diascordium; mucil. mixt.; five soups.)

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* Andral, in his *Clin. Med.*, vol. iv. p. 65, relates five cases of this description, only three of which are distinctly inflammatory. Out of eighty-nine cases of arachnitis (vide pp. 201, 203), in eleven the affection was confined to the ventricles. (Translator.)

From this moment the debility rapidly increased, and the patient no longer left his bed; he often complained to his companions of constant headache, and frequently supported his head with his hands. In the night of the 9th of October, there were alternations of stupor and delirium; persistence of the same symptoms the next day and following night. On the 11th, at the hour of the visit, he did not answer, or replied very indistinctly to questions; his eyes were usually fixed, and at moments there was a smile on the lips; the respiration was only slightly accelerated; pulse 66. The delirium continued, and the increased agitation compelled the use of a straight-waistcoat.

The next day, expression was nearly natural, intelligence had returned, and he went alone, without falling or stumbling, to the night-stool. During the night, constant delirium but no agitation. 13th.—The same state; heat elevated; pulse frequent. The patient did not speak. 14th.—He again rose to go to the night-stool, but at the visit appeared quite exhausted, though in answer to questions he said he was quite well. During the day he indicated his wishes by signs, but was unable to speak. 15th.—Expression rather animated; eyes half closed; lay with the knees elevated; appeared to suffer no pain. 16th.—Retained the same position in bed as he had the preceding evening; seemed perfectly conscious, followed our movements with his eyes, and an hour afterwards, expired.

Sectio Twenty-two Hours after Death.

Exterior.—Considerable emaciation.

Head.—Dura mater as if lacerated, giving passage to the arachnoidien granulations; marked distention of the superior veins on the right side; very little on the left. Three spoonfuls of serum in the left lateral ventricle; much less on the right; septum lucidum softened, pulpy, of natural colour. Similar state of the posterior crura of fornix; corpus callosum rather less consistent than the other portions of brain, which were firmer than usual, with very slight injection. Between the arachnoid and pia mater, anterior to and immediately lying on the optic nerves, was a layer of concrete pus, about three lines thick, and an inch wide.

Neck.—A superficial ulceration on the inferior surface of epiglottis; larynx natural; two inches lower down, and on the fleshy portion of trachea, there was an ulceration about the size of a halfpenny, with thickening of the corresponding sub-mucous tissue; in other respects the mucous membrane was healthy.

Thorax.—Weak cellular adhesions over the summit of left lung, which presented pretty numerous tubercles and grey semi-transparent granulations, diminishing in size and number from above downwards; its lower lobe was firm, granulated, of a variable red colour, and everywhere hepatized. The right lung adhered to the costal pleura, and offered in its upper lobe a vast excavation communicating with the bronchi, as well as other smaller cavities; all of which contained a copious fluid resembling unhealthy pus; they were lined by two false membranes, one of which was soft and yellowish, the other firm, greyish, semi-cartilaginous, lying either on the healthy lung, the grey semi-transparent matter or tubercles. In the remainder of the same lobe there were numerous softened tubercles; its lower lobe was of a deep red colour and hepatized. Heart and aorta natural.

Abdomen.—Stomach rather contracted; its lining membrane covered with a good deal of mucus, was pale with a punctated injection in the left extremity; its consistence and thickness were rather less than natural. There were a few small ulcerations, and four sub-mucous abscesses, about the size of a pea, in the lower six feet of the small intestine; in other respects the mucous membrane was healthy. That of the cœcum and colon was much softened, with some small ulcerations on the right side. Mesenteric glands increased in volume, with no other alteration. The remaining viscera were healthy.

367. The softened state of the septum lucidum and fornix, with the inflammation of the sub-arachnoidien tissue between the optic nerves, renders the analysis of the cerebral symptoms difficult and obscure. We may however remark, that there were neither pains, rigidity, or paralysis of the limbs, and consequently, but very incomplete indications of softening. The headache and agitation may be equally referred to one alteration as the other, so that no satisfactory conclusion can be drawn. The general character of the symptoms however, were rather those of meningitis than partial softening of the brain.

Without insisting farther on this subject, which is not important for our immediate purpose, let us observe that there was hepatization of the left lung, and that its inflammation, as is so frequently the case when complicated with a cerebral affection, gave rise to no symptom; that the ulcerations of the trachea and epiglottis were also latent; and what is still less frequently the case, there had been hoarseness with alteration of the voice for more than six months, while the state of the larynx was healthy.

368. We shall conclude this chapter, by a rapid summary of an observation already published,* which is an example of partial softening of the brain unaccompanied by any other alteration.

Observation XXVII.

A watchmaker, aged 19, of very delicate health, and nervous temperament, entered the hospital of La Charité, 29th October, 1823. He had coughed and expectorated the last four months, was extremely emaciated, presenting all the symptoms of phthisis, and complained of a dull headache, with pains in the limbs and loins, vigilium, and extreme debility. His intellect naturally good, was unaffected, and his expression was without any peculiarity.

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* *Mémoire sur le Ramollissement Avec Amincissement de la Membrane Muqueuse de l'Estomac*, p. 18. (Author.)

Nothing remarkable occurred on the following days, but on the 2d of November there was great general prostration of strength; he did not reply to questions, although he indicated by signs that he comprehended them. He could not support himself in the upright posture. The same night there was delirium and constant talking. 3d.—At 6, a. m., the eyes were fixed, expression dull, limbs much relaxed on either side, almost incapable of any movement; he understood when spoken to, but replied with the greatest difficulty and unwillingness. He said that he had a pain in his head. During the day the state of stupor was complete, without convulsive movements. On the next day, 4th, some spasmodic contractions of the limbs, principally on the right side; pupils dilated, especially the left; head turned to the left, total loss of consciousness with an expression of vacancy. Pulse, which was 94 in the evening, was now 114; frequent sighing. These symptoms continued until the evening, when he expired at 8 o'clock.

Sectio Thirty-six Hours after Death.

Head.—Lacerations of dura mater traversed by granulations attached to the arachnoid which was thickened and opaque in the corresponding points. Cerebral veins rather distended, with some injection of pia mater; the right hemisphere firm and with numerous red points; the left rather soft; septum lucidum of a pulpy consistence; a similar state of fornix, particularly of the left pillar, without any change of colour; two spoonfuls of fluid in the left ventricle, rather less in the right; in the former the lining membrane was thickened. Two spoonfuls of fluid also in the inferior occipital fossæ.

Thorax.—Some tuberculous excavations in the summit of left lung, the anterior part of which almost wholly consisted of tubercles and the grey semi-transparent matter.

Abdomen.—Mucous membrane of stomach softened and thinned over a considerable extent. Some ulcerations in small intestine. Very considerable softening of the mucous membrane of the colon.

369. The softening of the septum lucidum and fornix were

very similar to what existed in the preceding observation; the effusion into the ventricles, coincided in its quantity with the difference in the degree of softening existing on one side and the other, which makes us consider it as an effect, and not a complication. Besides, the symptoms were here very distinct, viz. headache, delirium, pain, spasmodic contraction of the limbs, and lastly, dilated pupils. The extreme debility of the patient, when the affection commenced, and its subsequent rapid progress with the intense nature of the symptoms, are all very remarkable.

370. We have elsewhere detailed (*Obs.* 15), the history of a partial softening of the cerebral substance, preceded by the inflammation of the sub-arachnoidien tissue on the upper portion of brain, and which had come on thirty days before death. Although not intense, the symptoms corresponding to both these lesions were very distinct.

371. We would remark, in terminating this division of our subject, that we have observed the partial softening of the brain, quite as frequently after other chronic affections; that we have never seen apoplexy come on at the close of diseases of long duration; that this draws an additional distinction between softening of the brain and apoplexy; that it points out a fresh analogy between hæmorrhage of the brain and that of other organs, which so seldom occurs, in any of them, when the debility is extreme.

CHAPTER VIII.

OF THE VARIETIES WHICH PHTHISIS PRESENTS IN ITS PROGRESS.

372. In the general description of phthisis, we have seen that its first symptoms are cough, expectoration, dyspnœa, and sometimes hæmoptysis; that the sputa do not always immediately follow the cough; that the dyspnœa is equally irregular as to the time of its appearance; this is also true in regard to the fever and the succeeding symptoms. These differences in

the order and duration of the morbid phenomena, do not interfere with the regular progress of the disease, do not, so to express ourselves, alter its physiognomy; but there are instances, where its characters are so completely modified, that its recognition is impossible before its progress is considerable, it is in fact, *latent*[*] for a longer or shorter period. At other times it assumes the form and progress of acute diseases, its different periods seem confounded together, and the diagnosis is not less obscure than in the opposite condition. We shall successively study these two varieties of phthisis, adducing facts to establish their existence.

OBSERVATION XXVIII.

373. A woman, aged 82, with active intelligence and good memory, of middle stature and pretty strong constitution, was admitted into the hospital of La Charité, November 9, 1822. She was not liable to colds, had been ill three years, but considerably worse the last two months and a half. Her illness had commenced with rigors, followed by heat and perspiration, and until the last three months they had been repeated daily at about 1 o'clock. The appetite had diminished from the beginning, the thirst had become urgent, and there was slight emaciation. *No other symptoms were observed during the first year; at the commencement of the second,* she began to cough and expectorate clear sputa, which during the last three months have become opaque and nummulated. She had kept her bed nine weeks, and had had diarrhœa the last four, before entering the hospital.

Nov. 10.—Intelligence perfect; extreme emaciation; breathing rather accelerated; cough not frequent; sputa in isolated masses, of a dirty pink colour, and soon losing their shape. Percussion dull under the clavicles, particularly on the left side, and over a considerable space; cavernous respiration and pectoriloquy in the same points; this was also the case in the corresponding parts posteriorly. Pulse small, weak, regular, frequent; heat natural during the day, elevated at night;

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[*] Some speculative objections have been made to the use of the term *latent*, when applied to phthisis. It is evident that our author employs it merely to indicate the obscurity of the symptoms. (Translator.)

perspirations confined to the head and chest; tongue natural, mouth clammy, thirst urgent, no appetite, deglutition difficult; had experienced sense of heat and dryness of the throat the last two months; abdomen sensible to pressure; the previous evening three mucous stools. Great debility.—(Decoct. of rice with quince syrup; mucilaginous mixture; two rice creams.)

No evident change took place on the following days, and on the 18th of the same month, after an agony of some hours, she expired.

Sectio Forty-eight Hours after Death.

Exterior.—Nothing remarkable.

Head.—Arachnoid thickened and rather opaque for about an inch on either side of the longitudinal fissure, with partial adhesions to the dura mater; some slight sub-arachnoidien infiltration; two small spoonsful of fluid in each lateral ventricle; that in the right was turbid. The epiglottis, larynx, and trachea were not examined.

Thorax.—Strong cellular adhesions over the summit of right lung; the left perfectly free. On both sides the upper lobe was very easily broken down, presenting numerous small excavations, communicating with each other, and lined by a false membrane; their intervals consisted of grey semi-transparent granulations, and small portions of hepatized lung. The lower lobes were healthy. Heart of natural volume; sides of left ventricle rather thin, those of the right evidently thickened; both were of tolerable consistence; the aorta was of a rose tint here and there, without other alteration.

Abdomen.—Stomach of natural volume; lining membrane pale, without lividity, and of normal thickness and consistence; duodenum healthy. In the lower half of small intestine some granulations of a tuberculous nature; many of them were slightly ulcerated; over others, which were not softened, the mucous membrane was healthy. That of the large intestine was a little softened near the cœcum, where it presented ten small ulcerations, from one to two lines in diameter, without tubercles: no other alteration. The mesentery and other viscera were healthy.

374. The history of the disease presents two very distinct periods. In the first there was febrile movement, without

cough; in the second, the fever was accompanied with cough and expectoration. Was phthisis present in the first, or did it originate only in the second? If the examination after death had revealed a chronic and serious alteration of some organ besides the lungs, we might attribute to it the symptoms of the first period; but the lungs were here the only organs seriously affected, and we must consequently refer the symptoms of both periods to them, more especially as the character of the febrile movement was identical in both; and since the fever was not preceded by bronchitis, the present observation will allow us to draw the double conclusion, that tubercles may be developed in the lungs independently of bronchitis, and that they may remain *latent* for a considerable period, that is, without exciting either cough or expectoration.

375. Another fact also increases the interest of this observation, we refer to the gradual diminution of appetite during three years, although the gastric mucous membrane presented no perceptible alteration. This is a striking illustration of the fact to which we have frequently alluded, that lesion of function may be prolonged during a considerable time, without the presence of any appreciable organic change; that loss of appetite is not enough to characterize gastritis; that fever, and by this we include a quick pulse, increased heat, &c. is of itself capable of producing the same result.

Lastly, this observation is one of those very rare instances where the development of tubercles was confined to the superior pulmonary lobes.

OBSERVATION XXIX.

376. A bellows mender, aged 44, born of parents who lived to an advanced age, of moderately strong constitution, with fair skin, black hair, and usually enjoying good health, was admitted into the hospital of La Charité, 24th March, 1824. His appetite was never very great; his habits were very temperate, and he said that he had been ill the last nine months. At the commencement he was seized with rigors, followed by heat and perspiration, thirst, anorexia, &c.: during the first fortnight, the fever confined him to his bed, after which it diminished, though it never was completely absent, as he was always liable

to increased heat and occasional rigors; the thirst abated, the appetite improved, though it was never quite restored; he engaged again in his business, and continued in a doubtful state of health for four months, during which time there was no cough. After this period, the fever continued, the rigors returned daily, general weakness increased, and he was obliged to relinquish his occupation, and lie a considerable part of the day on his bed. In the last *six weeks* the anorexia was complete, and shortly afterwards it was *accompanied with a slight cough*, so that when the patient entered the hospital this had been present about a month. Our enquiries were particularly directed to the accuracy of this fact, and the patient invariably persisted in declaring that he never had any cough previous to this period. For some months he had been subject to hoarseness and oppression, had rapidly lost his flesh, experienced occasional pains between the shoulders, and during the last three years had been attacked with ten copious hæmoptyses, one of which occurred only a few days previous to his entering the hospital.

March 25.—Expression natural; sleep much interrupted by cough; sputa yellow, greenish, but in separate masses surrounded by a limpid copious fluid; percussion of thorax clear; a crepitating ronchus nearly all over chest, decreasing in force from above downwards; cavernous respiration, with distinct pectoriloquy between the shoulders, and on the right side. When the patient spoke, there was a species of metallic tinkling; pulse regular, slightly accelerated, weak; tongue moist and clean, pale on the edges, spotted with red in the centre; mouth clammy; thirst moderate; very little appetite; breath fetid; constipation the last two days; abdomen everywhere yielding and free from pain.

April 1.—State of patient nearly the same; he complained of constipation and extreme weakness; the metallic tinkling more evident than before; anteriorly on the right side there was a crepitating ronchus mingled with a gurgling sound; percussion dull under left clavicle; sense of oppression in the epigastrium. 2d.—Uneasiness and anxiety, with increased dyspnœa. These symptoms gradually increased, and the patient expired the following morning at 5 o'clock.

Sectio Twenty-seven Hours after Death.

Exterior.—Nothing worth noting.

Head.—Rather considerable sub-arachnoïdien infiltration; some granulations near the longitudinal fissure, adhering to the dura mater; pia mater slightly injected; brain firm and healthy; two spoonsful of serum in the lateral ventricles.

Neck.—Epiglottis, larynx, and trachea natural.

Chest.—Lungs everywhere adherent to costal pleura; superiorly the adhesions consisted of a very dense false membrane, a line thick, and lower down, of cellular prolongations. The summit of left lung presented a vast, rugged excavation, traversed by bands, and lined by a false semi-cartilaginous membrane, lying either upon healthy or diseased lung. The upper lobe was indurated, of a greyish colour over two-thirds of its extent; it had a granulated appearance, was in fact hepatized and easily broken down; it contained numerous tubercles and some grey semi-transparent matter; the lower lobe was rather red, with pretty numerous tubercles and granulations. A similar excavation existed at the summit of the right lung, but still larger; the remainder of the upper lobe consisted of tubercles and grey granulations. The communicating bronchi were very red and much thickened; the others were thin and of a pale pink. Heart and aorta natural.

Abdomen.—Stomach of moderate volume, containing some thick and tenacious mucus. The lining membrane rather red round the cardiac orifice, greyish along the large curvature, a little softened in the great cul de sac, of normal consistence and thickness elsewhere. That of small intestine presented some variably red spots, and in the lower half five small ulcerations, many of which contained tuberculous granulations in their centre. There were three large ulcerations in the cœcum; the mucous membrane of colon was here and there of a light red, without any other alteration; the fæces were of a bright yellow colour, of normal form and consistence. Mesenteric glands rather voluminous, of natural colour and firmness. Liver pale; bile dark coloured and thick, like treacle. The other abdominal viscera healthy.

377. Between this and the foregoing observation there is an

almost complete analogy both as regards the simplicity of the disease and the progress of the symptoms. The febrile movement preceded the cough, which indeed only existed the last six weeks, and after death the lungs were the *only* organs in which a serious and chronic lesion was present. We cannot therefore attribute the previous febrile movement either to the cough, or the morbid condition of any other viscus, and we are forced to the conclusion that tubercles existed long anterior to the cough, and were not dependent on bronchitis. This induction is still more natural and necessary in the last observation than in the preceding, for in this, the cough only dated six weeks, while the excavations were very large, and we have already seen (19), and shall again verify the fact farther on, when speaking of acute phthisis, that similar excavations are not produced in six weeks, or in two months, that *they necessarily suppose the duration of the disease to have been from four to five months.*

378. In either case, it is clear that tubercles have existed in the lungs, during a longer or shorter space of time, without determining cough; that they have given rise, while in this latent state, to febrile symptoms more or less intense, to anorexia, emaciation, and loss of strength. In cases where these are the only symptoms, may we suspect the presence of tubercles? This would at least have been probable in the case before us; for two years before the invasion of the febrile symptoms, the patient had had several hæmoptyses, and we have said (233), that this fact, if not a certain, is at least an infinitely probable indication of pulmonary tubercles. Supposing for a moment that we had seen the patient soon after the commencement of the fever, we ought then, by means of the previous history, to have suspected the existence of tubercles in the lungs, and perhaps at this period, auscultation would have removed every doubt. We ought therefore *never* to neglect this method of investigation, whenever febrile symptoms are present without any evident cause, more especially if these have been preceded by one or more hæmoptyses.

379. Among the secondary phenomena meriting attention, we may recall the metallic tinkling, which, according to Laennec, announces a vast excavation partly filled with air and fluid, which was the case in the instance before us. We ought

also to remember the state of the gastric mucous membrane, which was perfectly healthy, although the digestive functions had been deranged for a long time. The absence of nausea and vomiting did not lead us to expect any serious alteration.

Lastly, the bronchi were healthy with the exception of those communicating with the excavations, proving, as we have already remarked (36), that the thickening and alteration of their mucous membrane, results from the constant action of the contents of the excavations.

OBSERVATION XXX.

380. A sempstress, aged 22, born of healthy parents, not liable to cold, usually in good health, and with considerable *enbonpoint,* was admitted into the hospital of La Charité, 9th of September, 1824. She had been subject to shortness of breath from her infancy, dating her present illness two years and a half. During the first seven months, she had constant fever, with daily paroxysms of cold and heat at 4, p. m. These gradually ceased without any treatment having been tried. While they continued, the patient was confined to her bed, eat very little, having almost completely lost her appetite from the commencement; the emaciation was rapid. She afterwards partially recovered her strength and flesh; her usual dyspnœa considerably increased, and during *the three months which preceded her entrance into the hospital,* that is, *from the moment she began to cough and expectorate, it became extreme.* Previously to this period she neither coughed or expectorated, and on this point, the patient, whose intelligence was developed and memory good, never varied her statement. The appetite was always much diminished; almost absent. The diarrhœa constant, sometimes copious during the last eight months, and accompanied with colic pains. The debility daily augmented, and for five months before we saw her, she had been confined to her bed. The rigors, followed by heat and perspiration, had reappeared the last five weeks; there had been no hæmoptysis.

10th September.—Face pale; extreme weakness; intellectual faculties perfect; great emaciation; considerable dyspnœa; speaks hurriedly; cough principally violent in the morning;

expectoration greenish, scanty, semi-opaque. Cavernous respiration with distinct pectoriloquy and dulness of sound in an extent of five inches under the left clavicle; the same symptoms posteriorly in the corresponding point; on the right, the respiration seemed natural; pulse weak and accelerated, heat rather elevated, tongue pale, very little appetite; liver extended three inches below the ribs; no pains in the epigastrium; three stools with colic the last twenty-four hours.—(℞ White decoction; mucilaginous drinks; julep; rice and an egg for food.) 12th.—She complained for the first time of pains in the upper part of larynx. 18th.—Continuation of the pains, which were only felt on attempting to swallow; appetite rather improved; coughs little; no rigors. 20th.—Increased cough and dyspnœa, with frequent stools and copious perspirations.—(A mixture with a grain of opium.) The diarrhœa rapidly diminished; the cough was occasionally violent; some nausea and even vomitings of a clear fluid mingled with mucus; total loss of appetite; no alteration of voice.

30th.—The pains in the neck had ceased, she complained of headache and general lassitude; the tongue, lips, and interior of cheeks, were covered by a large number of white thin patches, beneath which the mucous membrane was rather redder than natural; had experienced no pricking sensations in the tongue, and the membranous patches disappeared the next day. The deglutition became very difficult, the expectoration ceased, pulse fell to 90 the two last days, and on the 4th October, at 10, a. m., she expired, having preserved her consciousness, and experienced much mental anxiety to the last.

Sectio Twenty-two Hours after Death.

Exterior.—Nothing remarkable.

Head.—Four small spoonsful of fluid over the upper portion of arachnoid; slight sub-arachnoidien infiltration; some injection of pia mater; cortical substance of a pink colour; the medullary presented few red points. A spoonful of clear fluid in each lateral ventricle; two more in the inferior occipital fossæ.

Neck.—Mucous membrane of pharynx pale, thickened, with numerous small ulcerations, from one to two lines in diameter;

that of the epiglottis was destroyed over half of its lower surface. Nothing worth noting in larynx and trachea.

Thorax.—Left lung adhered intimately to costal pleura; the upper lobe was invested by a false semi-cartilaginous membrane, from a line to a line and a half thick, which was continuous anteriorly and internally with another less dense, which partially covered the upper lobe on the right side. In the summit of left lung there was a vast excavation, with very thin parietes posteriorly, bounded inferiorly by a rugged septum, dividing it from another cavity seated in the posterior portion of the lower lobe. Throughout the remainder of the upper lobe there were considerable masses of grey semi-transparent matter, interspersed with numerous whitish yellow granulations. The intervening tissue was healthy. At the summit of the right lung, there were some small excavations, and every where numerous granulations or masses of grey semi-transparent matter, similar to those on the left; many among them were an inch wide by three inches long, and were spotted with white, opaque, miliary points; two-fifths of the lung was permeable to the air. Bronchi rather red and slightly thickened near the excavations; elsewhere they were healthy.

Having injected the pulmonary artery, we found numerous ramifications in the healthy parts, very few, and often none at all in the grey semi-transparent masses. There were none in the grey opaque substance occupying the upper lobe of the left lung, which was probably the result of chronic inflammation.—(16.) Several of the bands traversing the excavations were supplied by some very small arterial ramifications. Heart small; parietes thin, but firm; aorta healthy, narrow.

Abdomen.—Stomach elongated, nearly covered by the liver; its mucous membrane of a bright red, rather softened anteriorly, normal everywhere else. Some minute ulcerations in the lower sixth of small intestine, and in their intervals numerous white, opaque, semi-cartilaginous granulations, increasing in size and number towards the cœcum; in the rest of its extent the mucous membrane was healthy, with the exception of some red spots irregularly distributed. Eight ulcerations, from an inch to an inch and a half in surface, in the cœcum, ascending and transverse colon. The corresponding mucous membrane was destroyed, and the sub-cellular layer rough and thickened.

In the intermediate spaces, and in the remainder of its extent, the mucous membrane was a little softened, of twice its usual thickness, and in some points of a violet colour. Mesenteric glands small and healthy. The liver descended an inch and a half below the ribs, was of a tawny colour spotted with red, with numerous pale points; it was not distinctly adipous. The bile dark coloured, and of the consistence of treacle. Spleen rather voluminous and softened; the other viscera healthy.

381. Our reflections on the previous observation are equally applicable to the last. When we first saw the patient, the cough had only been present two months, and already large excavations existed in the left lung. It had therefore been preceded by tubercles, which cannot, at least in this instance, be considered a result of bronchitis. The condition of the gastric mucous membrane indicated a recent alteration; the intestinal ulcerations were depending upon, and consecutive to phthisis. It is then to the lungs alone that we can attribute the intense febrile phenomena experienced by the patient during the first six months of her protracted illness; for no one, doubtless, will believe the fever to have been a simple aigue, which does not diminish the strength and appetite, so as to force the patient to remain in bed.

Some however may still consider our conclusions precipitate; but let them remember that this patient was very intelligent, her memory good, that she was questioned with the greatest care, that *all* the organs were carefully examined after death; and they will I think admit, that if the facts were rigorously correct, our conclusions are legitimate. While we ought always to avoid deducing consequences from doubtful facts, let no such hesitation exist for those which are well ascertained, especially when no complications are present to render their interpretation difficult.

282. We have said that the redness, combined with slight softening of the membrane lining the anterior surface of the stomach, was a recent alteration; and our opinion is confirmed by the inconsiderable epigastric pains and nauseæ which came on after the entrance of the patient into the hospital; so that in this instance, as in the two first observations of this chapter, the previous anorexia experienced by the patient was not depending on any appreciable alteration of the mucous mem-

brane, but on the general phenomena by which the stomach is influenced in common with other organs.

Relative to the distribution of the pulmonary artery, we refer the reader to what we have said in the first part of this work (11), and shall merely observe, that the left lung was either wholly converted into excavations, and the grey and opaque, or semi-transparent substance; that on the right side there were barely two-fifths of the lung permeable to the air, and that the respiratory function was almost entirely confined to this diminished surface.

383. The following observation is another example of latent phthisis, the progress of which was so chronic and obscure, that it was not recognized during life.

OBSERVATION XXXI.

A woman, aged 31, of delicate constitution, great sensibility, and subject to shortness of breath from her infancy, complained of being liable to frequent indispositions for several years past. She said she was not subject to cold; but, in referring to former periods, we discovered that for the last five years she expectorated a little every morning, and that during the first eighteen months of this period she had had a constant cough. This was never inconvenient, and ceased spontaneously after a long voyage and a residence of three months on the sea side. She did not recollect to have since taken cold, but the cough was excited by foggy weather and strong scents. During the last three years her usual dyspnœa had rather increased. At the commencement of this period, her digestion became languid, and now and then she suffered from a sense of weight and prickings in the right hypochondrium, the skin assumed a yellow tint, and an organic affection of the liver was supposed to exist; for four or five months she was treated by calomel and purgatives, her diet restricted, although her appetite was but slightly diminished. This treatment did not relieve her. Afterwards the digestive functions became more deranged, the appetite decreased, and the catamenia were suspended at different intervals for three or four months, and had been wholly suppressed for the seven months preceding her admission into La Charité, January 2, 1823. She had been subject to sore throats and palpitations;

the thirst was occasionally urgent the last three years; she had never had hæmoptysis.

Jan. 2.—Yellow tinge over the whole surface, conjunctiva natural; considerable debility, lassitude in the limbs, prickings in the legs, back, and sides of chest; speech hurried; no dyspnœa when quiet, but it is brought on by the least exertion; no cough or expectoration; percussion everywhere clear; respiratory murmur natural, except under the right shoulder-blade, where it was stronger than in the corresponding point on the left side. Pulse rather quick, heat moderate; tongue clean, moist, of a pale pink colour; appetite diminished; no thirst; digestion easy, especially of animal food; epigastrium resisting; hypochondria yielding; stools rare; urine copious, and without pain. The patient complained only of weakness and pain at the back of neck.—(℞ Infusion of sapon. offic. for drink; extract of gentian ʒj. twice a day; a quarter of house allowance.)—She remained nine months in the hospital, where she died on the 28th September.

During this period we observed her every ten days, more frequently during the last month, and the following was the result:—At the end of February there was slight cough, though the patient assured us constantly that she did not cough; the breathing was quickened by the slightest movement, but from the almost absence of cough we attributed this to the general weakness. *During the last fifteen days of September the cough became much more frequent, and we then heard it for the first time.* On the 22d, there were some isolated sputa, which made us suspect phthisis, but auscultation, imperfectly employed the same day, gave no satisfactory information. Pulse was always small and weak, and was slightly accelerated after the first six months. In general there was slight increase of heat in the evening, and during the last month only, occasional rigors with night perspirations, occupying the neck and chest. The appetite was variable; she eat a fourth or half the house allowance; after this it totally failed. Digestion almost always difficult, but rather less so when boluses of the fellis tauri were prescribed; some nausea during the last forty days. At the commencement, and during the course of this last period, she complained of pains in the neck, and of difficult deglutition, particularly just when the food was entering the stomach. The thirst was always rather urgent in the evening.

From the sixth month the liver descended below the ribs, and she was sensible to the presence of a weight falling to the right or left as she changed her position in bed.

The tongue was constantly the seat of heat and unpleasant pricking sensations, retaining its natural colour until the end of August. It was afterwards covered with white, rounded, variably thick patches, which lasted one or two days, reappearing after irregular intervals. At first no change took place in the colour of the tongue; it subsequently became red. A similar exudation took place on the roof of the mouth and inner surface of cheek and lips.

Colic pains were frequent, sometimes very acute, and during the last six months there was occasional diarrhœa.

The yellow tint of the skin persisted; and towards the middle of July some brown spots on the face, which were light coloured and small when we first observed the patient, became darker, and gradually extended over the whole face, like a mask. Œdema in the lower part of legs, during the last six months. The debility progressed slowly, and the patient was only confined to her bed the last fifteen days.

Sectio Thirty-four Hours after Death.

Exterior.—Extreme emaciation; slight œdema of lower part of legs.

Head.—Some arachnoidien granulations; brain yellowish on the surface, of good consistence; no other alteration.

Neck.—Base of tongue rather red, and covered with a false pultaceous membrane; larynx and epiglottis natural; trachea was filled by a white frothy fluid; its mucous membrane healthy.

Thorax.—Left lung free; some slight adhesion of the right upper lobe, corresponding to a large tuberculous excavation, lined by a thin false membrane, almost wholly in contact with healthy lung. Numerous small excavations communicated with it, which were surrounded by slightly infiltrated or indurated pulmonary tissue; the two lower thirds of right lung were engorged, and of a pale red colour. On the left side the engorgement was less considerable, but at the summit there were numerous small excavations, containing the remnants of tuberculous matter. On either side, the bronchi communicating with the excavations were of an extremely *pale pink colour*, and *very thin*; elsewhere, they were pale; in all, the mucous membrane was of normal consistence and thickness. There were about six ounces of fluid in the left pleura. Heart of moderate volume; lining membrane of left ventricle and aorta of a bright red; this extended to the middle arterial tunic, which was not otherwise affected.

Abdomen.—Mucous membrane of œsophagus was pale, and everywhere covered by a soft apthous membrane, which seemed simply in contact with it. Stomach was small; its lining membrane and that of small intestine were everywhere normal, both as to colour, consistence, and thickness; that of the colon was greyish, and soft as mucus in its two lower thirds; mesenteric glands natural. The liver, though not increased in volume, descended below the ribs an inch and a half, was of a deep yellow colour, like gamboge, fatty, and of moderate consistence. The bile of gall bladder was of a dirty reddish colour, and thick; the other viscera healthy.

384. The latent character of the disease is here so evident, that very few reflections on our part will be necessary. During the nine months that the patient remained in the hospital, she may almost be said, with the exception of the last fifteen days, to have had no cough; and surely no one can doubt that the excavations in the lungs existed *anteriorly* to this period. The only difficulty we can have, is to know when the disease originated. If, on inspection after death, the lungs had been the only organs profoundly affected, we might ascribe the origin of phthisis to the first period of derangement in the patient's health; but the state of the liver was such, that some might attribute to it the greater number of the general symptoms which were present several years before death. If, however, we reflect that, three years anterior to any alteration in the colour of the skin, the patient was attacked with a chronic pulmonary catarrh, not intense, certainly, but continuous during eighteen months, that, after its disappearance, the cough was easily renewed by the slightest cause, such as smell, fogs, &c.; that the alteration

of the liver was one which is almost peculiar to (161), and depending on phthisis, and consequently subsequent to the existence of the latter; we shall be induced to believe that the presence of tubercles in the lungs must be referred to the period of the chronic bronchitis; and to *their* influence must be ascribed the uneasiness, and other symptoms experienced by the patient from this moment until death. It would indeed be impossible to have any correct idea of the very gradual progress of the debility, and the general mildness of the symptoms, if the cause to which we refer them had not acted very slowly, and the tubercular development had not been extremely chronic.

385. We have taken for granted that the change in the colour of the skin depended upon the liver; but the condition of the conjunctiva may render this doubtful; and our doubts may be strengthened by the fact, that in no instance of the fatty degeneration of the liver, have we observed an analogous modification of the colour of the skin. We must however remember, that the patient had experienced pricking, and a sense of weight in the right hypochondrium, symptoms which were not present in the cases where the same morbid lesion was observed.

The œsophagus was lined by a false membrane, similar to what we had remarked on the tongue and inside of the mouth; during a month the œsophageal deglutition was more or less difficult, and there had been pains in the neck. Now, since the trachea was healthy, we are inclined to refer both symptoms to an inflammation of the lining membrane of the œsophagus. This opinion appears highly probable, although we have frequently observed a similar exudation to the one in question, without these accompanying symptoms.

386. Let us also remark that, notwithstanding the frequent variations, the diminution, and finally, the total loss of appetite, the gastric mucous membrane was perfectly healthy.

The structure of the excavations also merit our attention. The largest was invested by a false membrane, lying upon almost healthy pulmonary tissue; this fact is rare, and it is only in analogous instances, *when the number of tubercles is small, that we can conceive the cure of phthisis to take place, by the cicatrisation of the excavation.* Lastly, with the exception of a pale pink tinge, the communicating bronchi were healthy, which, as well as the history of the symptoms, is contrary to the idea of chronic bronchitis being the cause of tubercles.

Observation XXXII.

387. A young woman, aged 21, of delicate health and great sensibility, had quitted, two months previously, the haberdashery business, to enter a religious establishment. She was well formed, with moderate *enbonpoint*, and said she had been ill six weeks before entering the hospital of La Charité, 24th September, 1822; she attributed her illness to the coarse nature of her food. The menstrual discharge commenced at the age of 15, returned every fifteen days during the first three years, after which it was less frequent, but always irregular, and accompanied with severe pains, principally in the loins. From the first, there was some leucorrhœa, and frequently epigastric pains; these had much increased the last six weeks, and were exasperated by all ingesta; they became very acute at night, but were moderated during an hour by a cordial mixture, which produced a burning sensation in the epigastrium. To these symptoms nausea was soon added; there was almost complete loss of appetite, with frequent colics, occasional diarrhœa, and during three weeks, daily rigors, followed by heat and perspiration; *there had been no cough*, and no sensible increase of her habitual dyspnœa.

September 25.—Face pale; muscular system firm; slight loss of flesh, sleep interrupted; she seldom complains of headache; great debility; breathing rather oppressed, which is referred to the epigastrium; no cough or expectoration; pulse very slightly accelerated; heat natural; tongue moist, whitish; bad taste in mouth; loss of appetite; no thirst; complains of pain below the xyphoid cartilage, without any increased local heat; another pain is felt around the umbilicus, with slight increased volume of the abdomen; bowels constipated for some days.—(℞ Solution of oxymel for drink; emollient enema; two rice creams.)—The patient not liking the oxymel, an infusion of succory was substituted; this was equally disagreeable, and weak tea was preferred.

October 4.—Some slight pains in the throat; respiration laborious, at times panting, very variable. In the upper part of right lung, posteriorly, there was indistinct pectoriloquy; this was also sometimes heard opposite the inferior angle of the scapula; the voice seemed to come in jerks; in other respects, the respiration appeared natural; there was no *cough*, or pain in chest; some fever in the evening, with persistence of epigastric pain. 9th.—Slight cough, with cavernous respiration and distinct pectoriloquy between the scapulæ, extending principally to the right side. We were very particular as to our inquiries as to the state of the respiration, previous to the patient's entering the hospital; and the only answer she returned was, that she was attacked with a cold every winter, lasting from one to two months, and that *she had not coughed once for the last twelve months.*

Until the 17th of November, when death took place, no evident change occurred in the state of chest; the sputa were scanty, sometimes frothy and mucous, at others completely opaque and flocculent; the cough was usually troublesome at night, and accompanied by occasional paroxysms of dyspnœa. During the last three weeks, the pulse became more frequent, with increased heat in the evening; no perspirations or rigors.

The epigastric pains were only momentarily mitigated by a warm bath; they afterwards became very acute, and were usually accompanied with increased local temperature; they ceased two days before death. From the 20th October she was attacked with bilious vomitings, recurring several times during the day, and increasing in frequency to the last. It was often necessary to change the drinks; the patient at length evincing disgust for every thing. The tongue towards the close became dry; there were occasional colics and diarrhœa. Great agitation during the last night, but no delirium or loss of consciousness.

Sectio Twenty-seven Hours after Death.

Exterior.—Considerable emaciation; the right cheek on which the patient lay during life was of a livid colour.

Head.—Slight sub-arachnoidien infiltration; no other alteration.

Chest.—Some clear fluid in the pleuræ; lungs free, soft, crepitating, healthy at their base, indurated at their summit, where we found a great number of encysted tubercles. Some were excavated or only softened; the majority were still crude; the cysts were easily separated from the pulmonary tissue, and in their intervals or lower down there were numerous grey granulations, yellow at their centre. The bronchi were thin and of a deep red. The heart small and of a bright red colour.

Abdomen.—Some reddish coloured serum in the lumbar regions; about a tumbler full of healthy looking pus in the pelvis. The omentum was closely adherent to the small intestines, as were also some of the convolutions among themselves, in points corresponding to ulcerations. Numerous miliary granulations on the peritoneal surface of the small intestines, most of which were semi-transparent; some were slightly opaque in the centre, and all were situated on the adherent surface of the peritoneum. Mucous membrane of stomach was red in the left extremity, over an extent of two inches; healthy in the vicinity of the pylorus and anteriorly; soft as mucus in the remainder of its extent. There were numerous ulcerations throughout the whole of small intestine, situated transversely, and with intervals of from two to six inches; many of them encircled the gut. The intervening membrane was healthy; in the ulcerated points it was destroyed, and the sub-mucous layer was thin and of a greyish colour; in some points the muscular tunic was exposed, thickened, and its fibres sometimes separated by tuberculous granulations. The transverse and right colon presented two radiated ulcerations of the size of a crown piece or larger, and similar in their structure to those of the small intestine; between these there was a much smaller ulceration, lined by the peritoneum. The mucous membrane was pale and softened in the transverse colon. Mesenteric glands more or less tuberculous, and the portion of the gland not yet transformed, of a bright red colour. The liver was voluminous, pale, yellow, spotted with red, easily torn, and adipous; the gall bladder small, containing bile of the colour and consistence of treacle; the other viscera were healthy.

388. The fact of pectoriloquy having been observed before the cough, is an evident proof of the latent nature of the disease. But to what period ought we to refer the origin of

the tubercles? The solution of this question appears to us impossible. For if we go back to a period anterior to the six weeks preceding the entrance of the patient into the hospital, that is, farther back than the period considered by herself as the commencement of her illness, we cannot lay greater stress upon the last cold than the one preceding, for during the interval, her health was good. However, the size, number and structure of the ulcerations of the small intestine, seem to indicate, that the pulmonary tubercles, on which they depended, existed anteriorly to the apparent origin of the disease.

389. At the time we collected this observation, we had not specially directed our attention to the softening with diminished consistence of the gastric mucous membrane, and we have here only noted its softening. It is however probable that both alterations existed, the patient having presented in an intense degree, and during a considerable space of time, the symptoms which characterise this double lesion, viz. anorexia, epigastric pains, nausea, disgust for every kind of drink, and lastly, bilious vomitings. The purulent depôt in the pelvis was the result of an acute and recent peritonitis, occurring no doubt during the last twenty-four hours; at least we are inclined to this conclusion, because when we last saw the patient, no symptoms of peritonitis existed, and during the night she experienced unusual agitation without any cerebral derangement; also because at the close of other chronic diseases we have remarked the same agitation, occurring during the same period and in similar circumstances. We however regard this mode of reasoning as conjecture, and have only employed it to show, that diseases, when near their termination, are not without interest for the observer.

Observation XXXIII.

390. A cook, aged 24, of weak and delicate constitution, middle stature, and having been subject to leucorrhœa both before and subsequently to the first appearance of the catamenial discharge, had been ill six weeks when she was admitted into the hospital of La Charité. At the commencement she had experienced colics, and pains of a very indeterminate nature; these pains, which were acute and unaccompanied by

fever during the first weeks, afterwards diminished; fever then succeeded, and she was frequently liable in the evening to rigors, followed by heat and perspiration. From the first the appetite was diminished, and soon ceased altogether, the patient only taking a small quantity of food in the morning, having remarked that in the evening it was always the cause of increased abdominal pain. Some purgative medicine during the first fifteen days produced slight diarrhœa; there was scarcely any increase of thirst, and no cough. The catamenia had returned at their usual period on the 16th of the last month.

On the 15th of July, 1824, the day after her admission, the face was pale; there was slight general debility; percussion of chest clear, respiration everywhere natural; *no cough or expectoration;* she had however experienced nineteen months previously, after a protracted cold, an hæmoptysis, which continued more or less during six weeks; the cold returned in the following winter; in the interval and ever since there had been some difficulty of breathing, but no cough. Heat and pulse nearly natural; had had some rigors the previous evening. The tongue was large, moist, of a whitish brown colour, the mouth clammy with bitter taste, no thirst; hot drinks excited disgust, cold drinks produced colic; abdomen rather tense and sensible to pressure; epigastrium painful; sufferings increased by all movements and during the febrile exacerbation in the evening; occasional colic and stools daily.—(Solution of gum syrup; emollient enema; emollient fomentations; hip bath; two soups.)

From this moment up to the 26th of August, day of her death, *there was no cough*, with the exception of the last ten days; it was then attributed by the patient to her throwing off the bed clothes during the night; it excited little attention, and on account of her weak state, auscultation was not practised. There was always more or less heat in the evening, sometimes preceded by rigors, and constantly followed by perspiration. Towards the end the pulse became very rapid, small and weak.

July 17.—The patient vomited some mouthfuls of bile: this was soon repeated with increased frequency and copiousness; it occurred daily until death, amounting sometimes to several pints of a greenish yellow coloured fluid. The epigastric pains were violent, accompanied with heat, and were always increased shortly before vomiting; from the middle of August they were only sensible at this period. The abdomen increased in volume, was often hot and painful; the diarrhœa was moderate and remittent; the appetite, which was usually depressed or absent, occasionally revived, when the patient relished a little soup and a fresh egg, without afterwards suffering any inconvenience. The debility rapidly increased.

On the 26th of August, during the visit, the patient was sensible of her approaching dissolution, and pointed out to us some lenticular bluish spots which had just appeared on the chest and hands. She expired at 3, p. m., the same day.

Sectio Eighteen Hours after Death.

Exterior.—Extreme emaciation; no rigidity of limbs, persistence of the lenticular spots observed during life; no vibices.

Head.—The upper half of brain firmer than the lower; two small spoonsful of fluid in the lateral ventricles. The tuber annulare and cerebellum rather soft.

Neck.—Epiglottis, larynx, and trachea, natural.

Thorax.—Right lung everywhere closely adhering to the costal pleura; the upper lobe contained innumerable miliary grey semi-transparent granulations, more or less opaque in their centre; there were none in the lower lobe. The left lung presented loose cellular adhesions, with everywhere grey semi-transparent granulations, and in its summit a middle-sized tuberculous excavation, lined by a semi-cartilaginous membrane, applied either on healthy lung or granulations, and covered by a soft albuminous exudation. The bronchi were healthy; heart rather small; aorta natural.

Abdomen.—The viscera and abdominal parietes were lined over nearly the whole extent by a false greyish membrane, either immediately in contact with itself, or with a dull white yellowish brittle substance; in a word, tuberculous matter interposed between its layers. This was most abundant in the pelvis. The stomach, of moderate volume, contained some bilious fluid, The principal portion of the great cul de sac was of a pearl white, and in the corresponding point the mucous membrane was extremely thin, and of the consistence of mucus; a similar alteration existed near the pylorus, over a surface of about four inches; between these two softened portions there were bands from three to four lines wide in the same state, while the intervening membrane was healthy. That of the small intestine offered some inconsiderable ulcerations, and was everywhere extremely softened. There were two ulcerations of three lines in diameter, with a much less softened state of lining membrane in the large intestine; some redness in the rectum. The liver was rather redder than natural, and easily broken down. The bile of gall bladder was of a brown colour, and moderately dense. The interior of uterus and the upper half of the neck were of a dull yellowish white, with an uneven surface; this was caused by the transformation of the superficial layer into firm tuberculous matter, of about a line in thickness; beneath this were numerous miliary granulations of the same nature; the remaining portions of parietes were free from alteration.

391. The analogy between this last observation and the preceding is most striking. Both individuals were nearly of the same age, similar constitutions, and equally liable to protracted bronchial affections and gastritic symptoms; very little cough existed in either case towards the termination of the disease, and after death a very close resemblance was found in the state of the lungs and stomach. The tuberculous affection in the last instance had also evidently preceded the cough; and on account of the hæmoptysis which had occurred eighteen months before the entrance of the patient into the hospital, and the slight dyspnœa which had since existed, we may consider the tubercular development to have taken place at the same period.

The state of the uterus and peritoneum is not without interest. A false membrane invested the abdominal parietes and viscera, enclosing between its layers a dull yellow substance, in patches of various dimensions. This might be regarded by some as solidified pus; but if we reflect that it presented the characters of tuberculous matter—that we have never found a similar deposition, except in cases of phthisis—that its occurrence on the surface of a false membrane is not more difficult to conceive than on the lining membrane of the ureters, vas differens, or vesiculæ seminales (*Obs.* 5, 6); we cannot I think suppose it other than tuberculous matter. With regard to the tuberculous transformation of the inner surface of the uterus, it must have taken place rather rapidly, since no derangement of the uterine functions existed previous to the patient's admission into the hospital.—(183.)

392. The tuberculous matter was also at the same stage of development in every organ, which seems to point out the influence of a *general* cause, and favours what we have advanced as to the nature of the deposition between the layers of false membrane.

393. The six observations we have just detailed are not the only examples we have collected; two of those, included in another division of our work, might be added to the number. One (*Obs.* 4), refers to a man who died after a violent diarrhœa, of five months duration, having coughed only during the last six weeks, and in whose lungs we found numerous tubercles and excavations, with very extensive intestinal ulcerations. The organic alterations were such, that it was impossible not to suppose them anterior to the cough; and since the diarrhœa was probably caused in the commencement by intestinal ulcerations (which we have shown are a consequence of phthisis), we must admit the origin of the pulmonary tubercles to have dated from the same period. The other instance (*Obs.* 9), was that of a girl, aged 19, who had been ill seven months, but who had coughed only a few weeks before entering the hospital; pectoriloquy was then distinct, the sputa were isolated and flocculent, which, combined with other reasons, proved the existence of tubercles anterior to the cough.

394. Out of 123 cases of phthisis, eight (or 1-15th), were examples of pulmonary tubercles which were latent, or in other words, which preceded the cough, during a period varying from six months to two years. This proportion, although considerable, is no doubt much less than it really is, if the hæmoptysis, which so often precedes the cough and expectoration, is the effect, and not a precursory symptom of tubercles. In fact, hæmoptysis had appeared before the other symptoms in seven of the cases cited as specimens of what we have termed "regular phthisis."

The eight cases of latent phthisis may be naturally divided into two classes: in one, the tubercles preceded the cough and expectoration, or even any important general symptoms (*Obs.* 4, 30, 31, 32); in the other, they gave rise to intense general symptoms, as fever, emaciation, anorexia, &c., before they excited cough or expectoration.—(*Obs.* 9, 27, 28, 29.) The indistinctness of the symptoms in the first division diverted the attention from precisely ascertaining the condition of the lungs; but in the other instances, from the impossibility of referring the symptoms to any particular organ, and the known frequency of phthisis, the presence of tubercles ought to have been suspected, and every means employed for ascertaining the exact state of the pulmonary organs. Had this been done, it is indeed probable that phthisis would have been recognized in all the cases of the second series, long before the presence of cough and expectoration. We are then strongly called upon to have recourse to these means whenever general symptoms are present, without being able to refer them to any particular organ.

395. The fact that tubercles may exist in the lungs without at once giving rise to those peculiar symptoms which, sooner or later, are almost invariably observed, must not be considered extraordinary, since this may be the case in inflammations of parenchymatous organs, of serous membranes, softening of the brain, &c. &c. But what really is remarkable, is the violence of the general symptoms, the functional derangement of organs which presented no appreciable organic alteration, while the only viscus really affected seems functionally healthy. It is in fact in the examples of simple and latent phthisis (*Obs.* 27, 28, 29), that the *febrile symptoms* have been most prominent, and the disorder of the digestive functions most protracted. These facts confirm what we have previously stated (252), that in the majority of instances *the fever in phthisical cases is depending on tubercles in the lungs*, and *not on the consecutive morbid changes, such as intestinal ulcerations, &c. &c.*

396. In the present state of our knowledge, it seems impossible to determine, or even to offer any conjecture on the nature of the causes which thus mask the presence of pulmonary tubercles.

We cannot attribute it to deficient sensibility, by which the lungs are unaffected by the presence of tubercles, since six-eighths of the cases were females, and in one-half of these, anteriorly to the cough, the febrile symptoms were intense.

The presence of complications equally fail to offer any explanation, for in the majority of instances they did not exist.

We shall again refer to these facts, when considering the *causes* of tubercles in the lungs.

Acute Phthisis.

The observations which we have as yet detailed, demonstrate the extreme variations in the duration of phthisis. We have seen it go through all its stages in periods varying from three months to *twenty years* (*Obs.* 10, 24); in the following examples its progress has been still more rapidly fatal than in any which have preceded.

OBSERVATION XXXIV.

397. A girl, aged 18, of tolerably strong constitution, with red hair, muscular system firm, with moderate *enbonpoint*, entered the hospital of La Charité, 29th April, 1822. She had been little subject to cold, usually in good health, and dated her present illness only fifteen days. At the commencement, she was attacked by rigors with shiverings, followed by heat and perspiration; the rigors were repeatedly renewed, the heat increased, and thirst became urgent; there were occasional nauseæ, and more rarely, some mouthfuls of bile rejected; complete loss of appetite, and frequent constipation; the debility had progressed with the other symptoms; lastly, on the *tenth day* from the commencement there was slight cough and expectoration; the catamenia, present from the age of 15, were suppressed the last three months; the patient had not kept her bed.

April 30th.—Expression animated; headache; general lassitude; respiration thoracic and accelerated (44); cough frequent; sputa semi-opaque, greenish, mingled with bubbles of air; pains under the sternum and left clavicle, sonorous ronchus on both sides of chest; pulse 103; heat intense; night sweats; tongue red on the edges, whitish in the centre; mouth dry, clammy, and with bitter taste; thirst urgent; anorexia; one liquid stool during the night.—(℞ Twelve leeches to labiæ; infusion of violets for drink; two emollient enemata.)

May 1st.—Increased uneasiness; pain in right side of chest; expectoration copious, greenish, striated with yellow lines; auscultation as before. (A poultice to the painful part.) May 2d. —Some diarrhœa and sudamina. (Blister to the chest.) From this period to the 19th May, day of her death, the progress of the disease was rapid and continuous; the respiration thoracic, frequent, varying from 49 to even 60 times in the minute; cough violent, especially during night; the expectoration retained the same characters; percussion of chest, frequently repeated, was clear; over the right side there was much mucous ronchus on the 7th. On the 10th, the respiratory murmur was stronger on this side than on the left. On the 18th, there was a kind of liquid crackling nearly all over the anterior part of chest, with crepitation on the left side. Pulse gradually quickened on the 16th (164); heat much elevated, and dry; constant night sweats from the 12th; anorexia continued; thirst very urgent, the patient drinking five or six pints of fluid in the four and twenty hours; some nauseæ, with bilious vomitings and epigastric pains the last seven days, and during the whole time there was slight diarrhœa.

The uneasiness increased; the face was pale; appearance much changed by the 16th. During the night of the 18th there was slight delirium, with embarrassed utterance; the patient cried out for assistance to relieve the sufferings in her chest. Death took place at 3, a. m., on the 19th.

The blister ceased to suppurate some days before death. She continued the same drinks; emollient enemas were frequently ordered; and during the last week, on account of the dry state of skin, M. Chomel prescribed some warm baths.

Sectio Twenty-four Hours after Death.

Exterior.—Extreme muscular rigidity; considerable emaciation.

Head.—Slight sub-arachnoidien infiltration; brain healthy.

Thorax.—The left lung offered some adhesions posteriorly; the upper lobe contained numerous grey semi-transparent granulations, surrounded by slightly engorged pulmonary tissue; the engorgement was more considerable in the base of the lower lobe, which contained a few granulations; the right lung, universally adherent, was transformed at its base into a mass of tuberculous matter of a pale rose tint, to the extent of two inches in height and two in breadth, occupying nearly the whole circumference of this part of the lung; it was perforated by a kind of anfractuous canal, enclosing a small quantity of a thick dark coloured fluid. Elsewhere the lung presented numerous semi-transparent granulations, and small softened masses of tuberculous matter; its tissue was slightly engorged.

Abdomen.—The gastric mucous membrane was covered by a viscid mucus near the pylorus, with some irregular redness in left extremity; the small intestine, colon, and other abdominal viscera were healthy.

398. In this observation the interval between health and disease was short; the cessation of one, and the commencement of the other, were well marked; the duration of the disease was thirty-five days, that of the cough twenty-five. The intense nature of the symptoms is as remarkable as the rapid progress of the affection. At first, intense febrile movement, associated after ten days with cough, expectoration, and dyspnœa; these rapidly increased; from the sixth day of the cough, the breathing was 47, and still more accelerated on the succeeding days; the temperature was much elevated, and pulse frequent; all pointed out an affection of the lungs. The percussion of chest however was clear, the results of auscultation nearly negative, not favouring the idea of bronchitis, and only giving reason to suspect, towards the close of the patient's life, the first degree of pneumonia, which gave no explanation of the preceding, or even the actual symptoms. Under these circumstances, was it possible to recognize the nature of the disease?

399. We might no doubt have employed auscultation with greater care, have studied the effects of the voice in every part of the chest; but supposing this to have been done, could we have formed our diagnosis? We think *not*. In fact, if we had detected resonance of the voice in the lower part of the right side, to have ascribed it to an excavation, would have been to have formed a conclusion in opposition to the general law of development of tuberculous matter, viz. from the summit to the base of the lungs; so that everything seemed combined to falsify diagnosis, both from the situation of the lesion and the violence of the symptoms.[*]

The absence of the symptoms of pleurisy or pneumonia,

[†] Out of 123 cases, this is the only example of tuberculous matter developed from the base to summit of the lungs. (Author.)

connected with the appearance of the sputæ, made M. Chomel for a moment suspect the existence of phthisis; but so many circumstances were opposed to the idea, that he ceased to entertain it. The fact however ought not to be forgotten; it increases the value of the expectoration as a diagnostic sign, and shows how useful it is to observe minutely its characters.

400. It is also very remarkable that, notwithstanding the extreme rapidity of tuberculous development, there were scarcely any traces of inflammation in the surrounding tissues, more particularly in the right lung.

The digestive organs were too incompletely described to allow us to extend our remarks on the gastric symptoms.

401. In the following observation, the tuberculous affection was not the immediate cause of death, but in its commencement was equally violent with the preceding, and this induces us to give it a place here.

OBSERVATION XXXV.

A teacher of the piano, aged 46, of middle height, strong constitution, with a deep chest and moderate *enbonpoint*, was admitted into the hospital of La Charité, the 6th of October, 1823; he had been ill three weeks. This affection had commenced without any evident cause, after having partaken of a moderate repast, with rigors, soon followed by heat, which has since persisted. After the first four-and-twenty hours the breathing became oppressed, the dyspnœa continually increased, and there was occasional cough. During the last eight days, the thirst was urgent with loss of appetite; no pain in the epigastrium; no nausea, vomiting, or diarrhœa.

October 7.—Expression of uneasiness, combined with indifference; answers questions slowly; some headache; movements of thorax limited and frequent; considerable oppression; cough rare, some mucous and frothy expectoration; respiration weak under right clavicle, natural everywhere else; no ronchus; heat moderate; pulse 80; tongue yellowish in the centre, natural on edges; anorexia; little thirst; sense of heat with dryness in the pharynx; deglutition easy, no epigastric pain; constipation.—(℞ Infusion of violets; mucilaginous mixture; emollient injection.)

The sputa becoming slightly viscous, he was bled the next day. 9th.—Expectoration rather easier; dyspnœa as before; no change in percussion or auscultation; tongue rather red on the edges; painful sense of heat and dryness in the pharynx, which, as well as the tonsils, was of a bright red; deglutition difficult; thirst moderate; heat considerable; pulse 104. Blood of preceding evening covered by a slight greyish layer, about a line thick.—(℞ Pectoral infusion; mucilaginous mixture, with ℥ss of the oxymel of squills; blister to the anterior part of chest.)

The next day the heat of surface was diminished; pulse less frequent. 11th.—Sputa rather viscous, white, spumous; respiration as on the 9th. No crepitation could be detected, and *percussion was everywhere clear*; pulse rather weak, 96; pharynx and tonsils as before; the uneasiness increased, the movements became difficult and uncertain. 12th.—Pulse less frequent; expression of prostration; speaks slowly; the uvula was infiltrated; he still complained of the heat and dryness in the pharynx. No change on the following day. 14th.—A kind of bellows sound (bruit de soufflet), was heard over a great part of chest; expectoration viscous, white or greyish; pulse very quick; tongue hard, dry, and cracked. Heat and redness of pharynx continue; increased anxiety, with general redness of the face. Some delirium in the night, and the next morning at 10, a. m., he expired.

There were daily two liquid stools; profuse perspirations of the head during the night; the abdomen was never painful.

Sectio Twenty-two Hours after Death.

Exterior.—Muscular system well developed.

Head.—Considerable sub-arachnoidien infiltration; the upper cerebral veins were distended; pia mater moderately injected; brain very firm, and injected; a spoonful of clear fluid in each lateral ventricle.

Neck.—Amygdalæ healthy; partial destruction of epiglottis on the left side; mucous membrane of larynx natural, that of trachea of a bright red inferiorly, not softened.

Thorax.—Lungs voluminous, dark coloured; the left was free, the right partially adherent. Their tissue was red, and granulated over the greater part of their extent, easily broken down, especially on the right side; firmer at the summit than the base, yielding when pressed, a thick dark coloured fluid, which was mingled with a little air inferiorly; there were numerous grey, semi-transparent granulations, diminishing from above downwards. They were opaque and yellowish in their centre, varying in size from hemp to that of millet seed, the latter of which were without the central opaque spot. The bronchi were thin, their mucous membrane healthy, with the exception of a slight livid tint. Heart rather soft; aorta presented some yellow patches.

Abdomen.—Some rounded ulcerations of about a line in diameter in the œsophagus; the corresponding mucous membrane was destroyed. Stomach voluminous; lining membrane of a red orange colour, rather softened in one-half of the great cul de sac, and thinned in other portions of the same region; it was elsewhere uneven, mamillated, greyish, presenting some indentations, from one to two inches long, by a line wide, where the membrane had only one-fourth the thickness it possessed in the mamillated portion. Duodenum rather red, without other alteration. Small intestine healthy, with the exception of one small sub-mucous abscess; lining membrane of large intestine was equally healthy; the liver was soft and of a tawny colour; spleen small. The other viscera natural.

402. The patient here evidently died from the pneumonia, and not from phthisis; but we think that at one period tubercles were alone present in the lungs, that they were the cause of the first febrile symptoms, and that their development was acute; the pneumonia may perhaps be considered the result of their rapid formation. In fact, from the 7th to the 11th inclusively, that is, from the fourth day before death, the respiratory murmur was natural on the left side of chest, rather feeble on the right, and nowhere was there any crepitation. Had there existed at this period some central portion of the lung attacked with pneumonia, the respiration on the surface would have been rather increased than diminished. Besides, an inflammation of so limited a description would not explain the violence of the symptoms or the intensity of the dyspnœa; percussion was universally clear on the day of entrance and up to the 11th of October; the hepatization was everywhere at

the same degree of development, and seemed to have taken place simultaneously. From all these considerations, we cannot suppose pneumonia to have originated earlier than the fourth day preceding death ; and that the fever, dyspnœa, and cough, anterior to this period, were owing to the very rapid development of tubercles. This really formidable commencement, and its resemblance to what occurred in the preceding observation, induce us to conclude that if the pneumonia had not been rapidly fatal, the tuberculous affection itself would not have been protracted.

It cannot be supposed that when the fever and dyspnœa commenced, that tubercles already existed in the lungs; for before this the patient was *in perfect health*, and it is difficult to imagine such numerous granulations to be present without impeding the pulmonary functions; so that everything* indicates that tubercular deposition was here extremely rapid.

403. The inflammatory condition of the larynx and the œsophageal ulcerations, no doubt increased the patient's anxiety and uneasiness, and it is to the latter of these lesions that we refer the inconvenient sensation complained of in the neck.

404. We have hitherto considered the mamillated state of the gastric mucous membrane, when combined with a greyish colour, as the result of chronic inflammation; this condition was very prominent in the instance before us, and yet thirty days before death the patient's health seemed excellent. Is this alteration compatible with a healthy state of the digestive functions, or is it sometimes capable of being rapidly produced?

405. Among the examples of acute phthisis we shall include the following observations, where the progress of the disease has been rather less violent and rapid than in the preceding cases.

Observation XXXVI.

A tailor, aged 19, of middle stature, and moderately strong constitution, entered the hospital of La Charité, 4th of May, 1824. Had been subject to very slight colds every winter, had never been seriously indisposed, and dated his present illness twenty days, having ceased his occupation the last four. At the commencement, cough, clear expectoration, sensibility to cold, anorexia, constipation; these symptoms continued, increased in intensity during the last eleven days, and were associated with pains in the left side of chest, principally near the shoulder, with headache and lassitude. On the 15th day, there was diarrhœa and complete loss of appetite.

May 5.—Face hot, red, animated; eyes brilliant, lively; headache, with dorsal decubitus; oppression moderate, little cough, expectoration like frothy saliva. On the left side there was pain under the edge of the false ribs, and percussion was dull in the lower half the same side of chest posteriorly, and anteriorly under the clavicle; cavernous ronchus very distinct in the latter region, and opposite the shoulder there was incomplete œgophonia. On the right side auscultation and percussion were natural. Pulse 90; tongue moist, natural on edges, brownish, yellow in the centre; mouth clammy, thirst urgent, no appetite; epigastrium and hypogastrium sensible to pressure; three liquid stools.—(Infusion of violets; mucilaginous mixture; V. S. ℥x.)

The same symptoms continued constantly increasing up to the 4th of June, when death took place. The dyspnœa was urgent and breathing rapid the last eight days. Cough sometimes violent, but usually moderate; the expectoration became partially greenish, but not striated, towards the last. 14th of May.—Percussion dull on the left side below the mamma and over the two inferior thirds of chest; the cavernous ronchus continued, with occasional cracklings. 26th.—Cavernous respiration under the left clavicle, without pectoriloquy. 28th.—Slight crepitation anteriorly on the same side. Pulse always accelerated, generally 100, but much quicker the last eight days. Heat elevated, copious night perspirations, occasional rigors. The tongue retained its first appearance; thirst urgent, proportionate to the febrile symptoms, no appetite, epigastrium rather painful the first six days; afterwards indolent. From the 22d to 24th of May, some clear vomitings, without bitterness. Two or three liquid stools daily, with little pain. The debility rapidly increased; towards the end he lay constantly on the right side, preventing the exploration of chest after the 28th of May. Some deafness and delirium the day preceding death.

June 4.—During the visit the intelligence was clear, thirst most urgent; dyspnœa extreme; perspiration very copious; and at 11, a. m., he expired.

He continued the use of the drinks first prescribed. Some broth was occasionally taken; he was bled a second time on the 10th of May; and twelve leeches were applied to anus, with a blister to the left side of chest on the same day, without relief. On the 31st, the urgency of the symptoms induced a repetition of the bleeding, with very little advantage.

Sectio Twenty Hours after Death.

Exterior.—Considerable emaciation.

Head.—Brain firm, rather injected; a spoonful of fluid in each lateral ventricle, and in the occipital fossæ. In other respects healthy.

Neck.—Cervical glands, red, voluminous, and firm; some of them contained miliary tubercles. Laryngeal surface of epiglottis slightly ulcerated, with a puffy state of the sub-mucous tissue; larynx natural; mucous membrane of trachea of a bright red, of normal thickness and consistence, with some small artificial looking ulcerations.

Thorax.—Left lung everywhere adherent, by means of dense resisting false membrane. At its summit there was a half emptied cavity of about the size of a nut, with numerous tubercles, and some isolated hepatized portions of lung; the remainder of the whole lung was almost entirely converted into tuberculous matter, disposed in masses of variable dimensions, between which there was scarcely a tenth of the parenchyma permeable to the air. The right lung was free, with numerous tubercles at its summit, many of which were softened or half excavated; they were confined to this portion of the lung; the thin edges of the upper and middle lobe were hepatized. The left ventricle of the heart rather hypertrophied; aorta natural.

Abdomen.—Stomach of moderate volume; its mucous membrane red and softened in the great cul de sac; over a space of four or five inches it was pearl coloured, thin, and soft as mucus; in the same portion the sub-mucous vessels were very evident; in the rest of its extent it was mamillated, more or less red, of normal consistence, and rather thicker than natural.

In the small intestine, near the cœcum, there were some semi-cartilaginous granulations, partly ulcerated, also some small ulcerations from one to two lines in diameter, and seven others about an inch in surface; all situated upon the agminated follicles. The corresponding sub-mucous tissue was denuded, uneven, thickened, and here and there destroyed; elsewhere the mucous membrane was healthy. That of the cœcum and ascending colon was easily torn; it was everywhere else natural. The mesenteric glands corresponding to the ulcerations were voluminous, more or less red, and spotted with numerous miliary tubercles; liver healthy; bile dark coloured, thick; spleen voluminous and softened; the other viscera natural.

406. Up to the period of the invasion of cough and fever, there was no functional derangement, so that we may in this instance fix the origin of phthisis; it was fatal in fifty days. It is true, the lungs were not the only organs affected; but if we reflect that the left was almost entirely transformed into tuberculous matter, and that the right also contained a certain quantity, it will be seen that death could have been but little accelerated from any complications which existed; so that we may regard it as the effect of the tuberculous affection of the lungs.

407. It is not so easy to point out the relative influence of the principal affection and its complications in the production of the febrile phenomena. Auscultation indeed, proved that the inflammation of the substance of the lung occurred only towards the close of life; but we cannot affirm that the inflammation of the gastric mucous membrane did not commence at the same time with the cough, although we think it probable, that it did not date more than four days previous to the patient's admission into the hospital. At this period, in fact, the anorexia became complete, and the epigastric pains were not present until some days afterwards. This however may appear doubtful, so that the observation before us is not a distinct example of the general symptoms which accompany acute phthisis.

408. When we first saw the patient, there was slight œgophonia opposite the left shoulder; beneath this, percussion was dull and there was no resonance of the voice, making us diagnosticate an effusion circumscribed by adhesions. But after

death, we found neither fluid, or false membranes, or adhesions; rendering every explanation of the œgophonia impossible.

409. However this may be, the absence of œgophonia below the shoulder on the twentieth day of the affection, in a point where percussion was dull and where we found the lung transformed into tuberculous matter, proves that this transformation already existed at that time; we can therefore scarcely doubt that the tubercles were almost simultaneously developed throughout the whole of the left lung; *a very rare circumstance, and which may be considered as peculiar to acute phthisis.*

410. Around the softened and thinned portion, the gastric mucous membrane was red, thick, and mamillated; if this last condition depends, as we have every reason to believe it does, on inflammation, the other most probably had the same origin. Let us also remark, that the ulceration of the epiglottis gave rise to no symptom; though we frequently questioned the patient as to his sensations in this region.

OBSERVATION XXXVII.

411. A washerwoman, aged 23, of pretty strong constitution, born of healthy parents, not liable to cold, entered the hospital, 11th of November, 1821. The catamenia were suppressed during the last eleven months, with no other derangement of health; said she had been ill fifteen days. Her affection had commenced by great oppression, and after eight days, an acute pain in the left side of chest, with cough, expectoration, great heat, especially at night; anorexia and thirst; these symptoms were preceded during some days, by diarrhœa.

November 12.—Acute pain in the left side of chest, increased by cough, inspiration and decubitus on the same side; cough frequent, often dry; expectoration frothy, whitish; pulse rather quick; heat increased at night; tongue moist, greyish in the centre; thirst; anorexia; three liquid stools without colic.—(Infusion of violets; mucilaginous mixture; twelve leeches to the labiæ; poultice to the chest.)

Shortly after the application of the leeches, the pain of chest diminished, and completely ceased; the patient could lie on either side. 16th.—Expression less animated than usual;

expectoration more liquid. 17th.—Four liquid stools.—(℞ V. S. ℥x). From the 17th to 24th, no change in symptoms; the appetite improved. 26th.—She vomited her drink, and complained of a bitter taste in her mouth, without other symptoms. (Food diminished.) The same symptoms continued the following days, and during the night of the 1st of December, after a copious perspiration she was attacked with violent rigor, cough, and dyspnœa, followed by a deep pain under the sternum. In the morning the sputa were white and spumous, the face livid, with great general depression. (Blister to the sternum.)

These symptoms continued to increase up to the 15th Dec., when death took place. 7th.—Mucous with some cavernous ronchus under the left clavicle. 11th.—Similar results from auscultation, with percussion dull in the same points. The voice suddenly became extinct, and continued so to the last without any pain in the larynx. 4th.—Sputa greyish, rounded and opaque; they retained these characters until death; diarrhœa during the last ten days. The patient usually lay on the left side, apparently absorbed by the feelings of oppression.

Sectio Forty Hours after Death.

Exterior.—Moderate emaciation; brain not examined.

Neck.—Larynx natural; lining membrane of trachea and bronchi of a bright red.

Thorax.—Right lung free, without tubercles, and engorged at its base. The left presented some cellular adhesions at its summit, was free elsewhere and there was no trace of false membranes. The upper lobe was almost entirely composed of tuberculous matter everywhere softened, divided into numerous masses, between which there was a certain quantity of the grey semi-transparent matter. The lower lobe presented a small number of tubercles, and was engorged at its base. Heart and aorta healthy.

Abdomen.—The stomach was not more voluminous than the colon; its mucous membrane pale. There were twelve ulcerations, from one to two lines in diameter, in the small intestine. Liver voluminous, fatty, and of a tawny colour; uterus normal; the ovaries of usual volume, but containing a small quantity of tuberculous matter.

412. Let us rapidly examine the principal circumstances of this observation. The catamenia had been suppressed ten months, during which time there had been slight uneasiness at the usual periods, but neither fever, emaciation, oppression, or cough; in a word, no symptoms which could be referred to an affection of the lungs. We cannot therefore date the origin of the tubercles farther back than the invasion of the dyspnœa, so that the affection lasted forty-eight days, and was probably the only cause of death; for notwithstanding the incomplete description of the gastric mucous membrane, yet from its paleness, the absence of nausea, vomitings, and epigastric pains, we may regard it as healthy. The prompt termination of the disease is rather remarkable, since the tubercles were almost confined to the upper lobe of the left lung.

413. But the principal peculiarity in this observation is its remittent character. In fact, after some days of oppression, the patient is attacked with fever, cough, expectoration, and acute pain in the left side of chest; these symptoms continue, with more or less intensity, eight or ten days, apparently yielding to the application of leeches to the labiæ; and after a general bleeding of ten ounces, the fever almost completely disappeared, the cough diminished, the expectoration became less copious, and the digestive functions improved. This amendment lasted eleven days, and during the night of the 1st December, the patient is seized with rigor, oppression, and anxiety; the cough is frequent, and death unexpectedly takes place on the 13th day of this last exacerbation.

It is however probable that the disease constantly progressed, and that the violence of the last attack was principally owing to the sudden softening of a certain number of tubercles, and their evacuation into the bronchi. It is certain, at least, that the expectoration underwent a decided alteration from the moment the symptoms became formidable.

414. The pain felt in the left side, at the commencement, renders this observation analogous to the preceding, and shows that, when tuberculous matter is rapidly developed, it can occasion more or less suffering. In neither case were there any traces of recent pleurisy. However, it is possible that the tuberculous matter being developed *immediately* under the pleura, the pain might still be owing to this membrane.

415. In the observations we have just detailed, the commencement of the disease was more or less violent, and death took place from thirty to fifty days, preceded by intense local and general symptoms. There was no hæmoptysis; the cough and expectoration sometimes preceded the dyspnœa, which last fact approximates these cases to those where phthisis was latent during a certain period, giving rise only to general phenomena.

416. But the number of our observations is too limited to justify any general description of acute phthisis, or to allow us accurately to delineate its diagnostic symptoms. We think however this form of the disease ought to be dreaded, in those cases where dyspnœa, cough, expectoration, fever, with sometimes pain of chest and very hurried respiration, come on suddenly and without evident cause; and where these symptoms persist and increase, notwithstanding the treatment we oppose to them, while the characteristic signs of pneumonia, pleurisy, and spasmodic bronchitis, are wanting. Our diagnosis may be assisted by the careful practice of auscultation and percussion; should we find percussion obscure exclusively under the clavicle, and the respiratory murmur feeble, or in any way altered, when symptoms such as we have described are present, we may consider the existence of unsoftened tubercles as certain. But notwithstanding this reunion of symptoms and the positive results of auscultation and percussion, doubts might still be entertained as to the nature of the disease in the first stage, if, as was the case in the 36th Observation, the tuberculous matter was simultaneously developed throughout the whole extent of the lung. For, under these circumstances, the dulness of sound at the inferior and posterior part of chest might favour the idea of pneumonia, although in the commencement the dulness of sound should have been limited to the subclavicular region. The change in the expectoration during the second period, the strong and cavernous respiration where it was previously obscure, and the resonance of the voice, would soon remove all doubts.

417. In the 34th, 36th, and 37th Observations, there were tuberculous excavations in the summit of the lungs; but they were small, incompletely excavated, and without false membranes; which proves, as we have already remarked, that these membranes only exist when the progress of phthisis is less acute.

418. Notwithstanding its rapid development, *secondary disorders were present, and similar to those we have described in cases where the duration of the disease was more chronic.*[*] Thus, we observed ulcerations of the mucous membrane of the epiglottis and trachea (*Obs.* 35,36), of the œsophagus (*Obs.* 35), and of the small intestine. In one case (*Obs.* 36), the mucous membrane of the stomach was softened; in another the *liver had undergone the fatty transformation;* and in a third the cervical and mesenteric glands contained a small quantity of tuberculous matter.

419. Three of the patients were young, 18, 19, 20; a fourth, where we found only grey semi-transparent granulations, was in his 46th year; the acute form was therefore not confined to young persons, and perhaps additional facts will demonstrate its existence at all periods of life.

420. We shall terminate this article by the following observation, which we should have mentioned first, were it not deficient in many of its anatomical details.

OBSERVATION XXXVIII.

A woman, aged 20, confined seventeen days since, of pretty strong constitution, and usually enjoying good health, entered the hospital of La Charité, 13th July, 1822. During her pregnancy her health had been excellent, and for six days after her delivery her general state was very satisfactory. She was then suddenly and without any evident cause attacked with violent cough, accompanied with expectoration, dyspnœa, fever, anorexia, and intense thirst. The lochia were suppressed and some abdominal pains succeeded. Ten leeches were applied to the epigastrium from the commencement; and she was bled without evident relief; these symptoms continued to increase, and there were occasional nauseæ. On the 14th July, the left side of chest became painful, and on the 15th, her symptoms were the following:—

Some headache, occasional pulsations in the ears; face pale; great debility; the patient requiring assistance for every thing; expression wandering, but answers were just; memory faithful; decubitus elevated; respiration thoracic, 48 in the minute; the pain in the lateral and inferior part of left side, less acute than on the preceding evening; cough rather frequent, percussion everywhere clear; pulse 140; heat elevated, no perspiration; tongue moist, rather pale; thirst urgent, anorexia, abdomen yielding; pain in the umbilical region; eight to ten liquid stools in twenty-four hours.—(Infusion of violets; mucilaginous mixture; blister to the anterior part of chest.)

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[*] This result is remarkable. (Translator.)

Up to the 1st August, day of her death, we observed the following:—Great oppression; respiration frequent (50 in the minute on the 23d July); cough moderate; expectoration brownish, not viscous. On the 19th, it was viscous, red, or greenish, and with yellow streaks on the 23d; this continued with little variation to the last. 17th.—Respiration natural on the right side, feeble on the left; obscure anteriorly the 18th and 19th; and on the last day associated with a slight, dry, sonorous, ronchus. On the 23d, gurgling was heard. On the 30th, the respiration in the same region was cavernous; pulse irregular for a short time on the 16th; it was small and 120 on the 26th, continuing as frequent to the last; heat always elevated; the tongue constantly pale and moist; was at first yellowish in the centre, but after a few days became clean, and of almost natural colour; no appetite; thirst rather urgent; some pain on pressure in the left lumbar region; stools rare, except the last ten days, when there was slight diarrhœa. During the same period, abdomen was tympanitic. The patient appeared very uneasy, not speaking except to answer questions. On the 23d, she said she had no pain; from the 22d to the 25th there was slight numbness in the right arm. On the 26th, complained of acute pain in shoulder of the same side if she made the slightest movement; the movements of the right leg were also difficult and painful. On the 30th, it became œdematous and more painful; the patient seemed to apprehend her danger, and thought herself dying of consumption. 31st.—Expression rather more animated than usual; she died at 4, a. m., the following morning.

Sectio Twenty-seven Hours after Death.

Exterior.—Emaciation not very considerable; slight œdema of lower extremities without vibices.

Head.—Sub-arachnoidien infiltration much more considerable *to the left*, than to the right; brain, lateral ventricles, &c. natural.

Thorax.—Half a pint of fluid in right pleura; the lung of same side engorged, but free from tubercles; the left lung was everywhere covered by a false membrane, forming adhesions to the costal pleura, much less dense at the base than at the summit of the lung. Between these two extremes the layers were separated, and enclosed about a pint and a half of thick pus; the lung was soft and rather heavier than the right, containing numerous small abscesses, communicating with each other, but not, as far as we could detect, with the bronchi. They were about the size of a filbert, separated by a variably thick layer of sound lung, and filled with thick pus, slightly greyish in the centre, and very dense on its circumference. Elsewhere there was no trace of either the tuberculous, grey, or semi-transparent matter. The bronchi were thin and of a pale pink tinge; heart flaccid; right ventricle rather larger than the left, with the parietes only one line thick; the aorta of a bright red colour, which gradually faded in the large ramifications; crural veins filled with coagulated blood.

Abdomen.—Half a pint of fluid in the pelvis; liver of moderate volume, tawny, and rather adipous; spleen twice its usual size, of a dull red colour, and much softened; gastric mucous membrane red and softened in a portion of the great cul de sac, elsewhere healthy; that of large intestine of a bright red and very soft; uterus augmented in volume and softened; internally of a brown red colour, lined by a sanguineous, reticulated looking substance; in one portion, which was prominent, and no doubt corresponded to the attachment of the placenta, it was easily removed and formed a layer of about a line thick. The vaginal parietes were red, and on the left side presented a perforation of half an inch in diameter, opening into an abscess lying on the iliac bone.

421. When the patient was admitted into the hospital, there

was no evident emaciation, her muscular system was well developed; in short, every thing indicated a recent affection; our reiterated questions as to the state of her health during pregnancy, were always answered by her saying, she was perfectly well, and that the cough and the other symptoms had come on *six days* after lying-in; so that we must admit that the left lung underwent the alteration we have described in the space of one month.

422. The condition of the lung has been incompletely noted; we have omitted to indicate the structure of the small abscesses, and it may be questioned whether they were not the result of some other affection than the tuberculous. If the dilatation of the bronchi (and we think we have only to choose between this lesion and tuberculous excavations) was the cause of the appearance, the disease must certainly have been chronic, the communications of the principal bronchial divisions easy to establish, and the contents of the excavations fluid. But here the disease was recent, we could not discover any communication with the bronchi, and the contents of the cavities were dense exteriorly, all which characters are not unusual in a tuberculous affection. Although the communication between the cavities and bronchi was not demonstrable after death, the cavernous ronchus which existed during life seems to have indicated its existence; we must also recollect the adipous state of the liver, which we have seen is almost confined to cases of phthisis.—(161.) We may then regard this observation as an example of acute phthisis, passing through its different stages in thirty days. It is remarkable that out of five cases of this description, in two the affection was bounded to one side of the chest.

423. We shall offer no remarks on the majority of the complications which were present, only recalling the pains and weakness of the right side of the body, when an excess of subarachnoidien infiltration on the opposite side was the only encephalic alteration. Is there any connection between this lesion and the symptoms?

CHAPTER IX.

SYMPTOMS OF THE PERFORATION OF THE LUNG BY TUBERCULOUS SOFTENING.

424. This species of perforation pointed out by Laennec, may be classed under two principal divisions: in one, a communication is established between the pleural cavity and the bronchi; in the other, this is not the case. In both, the moment of perforation is marked by very serious and characteristic symptoms, rendering our diagnosis, if not certain, at least extremely probable.*

OBSERVATION XXXIX.

A man, aged 36, of small stature and impetuous character, was admitted into the hospital of La Charité, 16th September, 1822. He had quitted a few days before the prison of Poissy, where he had been confined five months, having contracted soon after his arrival a *cold*, which had since persisted. Emaciation had commenced with the cough, and during two months he experienced daily rigors, epigastric pains, with fluid and frequent stools. Three days before entering the hospital, he was attacked *suddenly*, after having vomited on account of being exposed to the fumes of burning charcoal, with a violent pain in the left side, accompanied with dyspnœa, and great anxiety; after twenty-four hours the violence of the symptoms somewhat abated. On the third day from their invasion, the patient, who resided about 300 paces from the hospital, came there on foot at about half-past 1, a. m. The next day the pain and anxiety being still considerable, twenty leeches were applied to the chest. Two days afterwards (19th), face was pale, depressed, breathing thoracic and frequent, with orthopnœa; pain acute, percussion unusually clear over the whole of left side, where no respiration could be heard, or any metallic tinkling; the intercostal spaces were prominent and wide; cough rare, some isolated sputa; pulse 120; action of heart scarcely audible in the precordial region; mouth clammy; thirst urgent; very little appetite; sense of weight in the epigastrium after food; pain on pressure in the same region, which has been the case for the last two months.—(R V. S. ℥x; infusion of violets; mucilaginous mixture; julep.)

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* The four first observations of this memoir have been already published in our researches on various diseases; subsequent experience has only confirmed our first results. (Author.)

20th.—Symptoms nearly the same; fresh application of leeches to the left side, which was three-quarters of an inch larger than the right; the next day a blister was applied. 25th.—Pulse down to 92; the dyspnœa variable, sometimes very urgent; decubitus as before; left side still increases without any change in auscultation and percussion.

The patient disliking examination, auscultation was not again practised until the 5th of October. In the upper fourth of left lung, there was a confused murmur, and opposite the inferior angle of the scapula, when the patient spoke, there was metallic tinkling. In the same point, and lower down, the sound on percussion was dull; anteriorly it was clearer than natural, but here there was no metallic tinkling; the pain had ceased; the left arm was œdematous. On the 7th, the metallic tinkling was heard five inches below the axilla, and nearly everywhere on the same side of chest posteriorly. On the 8th, it was evident immediately under the axilla. On the 13th, it was heard in the same region, and opposite the mamma; inferiorly, percussion was dull. On the 20th, percussion was very clear between the clavicle and mamma, the metallic tinkling was nowhere heard. Cough not very frequent; expectoration scanty. On the 21st, it resembled the contents of tuberculous excavations. The patient remained constantly in the sitting posture. The appetite was exceedingly variable; epigastrium always painful on pressure, and the lightest food caused a sense of weight in the same region; stools more or less frequent; little perspiration; daily increase of weakness. The infiltration of the left arm continued until death. 8th.—Erysipelas in the elbow joint, which went through its usual stages as if no complication existed. 18th.—Some slight redness and swelling of thighs; the next day these symptoms were increased. 21st.—Great alteration of expression, and he expired at 3, p. m., on the thirty-third day from the origin of the symptoms which indicated perforation.

Sectio Seventeen Hours after Death.

Exterior.—Considerable infiltration of lower extremities, especially on the left side, where the inguinal glands were redder and more voluminous than on the right. On the left arm, where the erysipelas had occurred, the skin was still rather red, about a line thick, and lying on a layer of concrete pus, half an inch in depth, which was deposited in the midst of infiltrated serum.

Head.—Moderate infiltration beneath the arachnoid; three small spoonsful of serum in the lateral ventricles.

Neck.—A superficial ulceration one inch in length and half an inch wide, on the lower part of the muscular portion of the trachea.

Thorax.—On the left side there were nearly four pints of greenish coloured pus, free from odour, surmounted by a small quantity of air. The lung presented some cellular adhesions at its summit, and was invested elsewhere by a false membrane, which lined the diaphragmatic and costal pleuræ. The lung was flattened against the vertebral column, about two inches and a half in its thickest portion, presenting posteriorly, opposite the angle of the third rib, a rounded opening, four lines in diameter, the termination of a canal of the same dimensions, which, after an inch and a half, was continuous with one of the large bronchi. This canal was lined by a membrane which reposed either on tuberculous granulations or healthy lung, and evidently resulted from a larger cavity, successively narrowed by the compression of the air and pus. There were some small incompletely excavated cavities in the summit of the same lung, with numerous grey semi-transparent granulations. The right lung presented superiorly a depression corresponding to a semi-cartilaginous mass, enveloped by a black and dry substance with some softened tubercles. The mucous membrane of the bronchi was of a bright red. Some ounces of serum in the pericardium. Heart and aorta natural.

Abdomen.—Stomach distended by fluid; its lining membrane exceedingly soft in the great cul de sac where it presented some red spots, and in the lower portion of the same region, over a surface of two inches, it was, in common with the cellular layer, partially destroyed. Elsewhere the consistence and thickness were normal. In the lower fourth of small intestine, there were three large annular ulcerations with numerous small ones in their intervals, and some tuberculous granulations, ulcerated at their summit. The mucous membrane of large intestine was everywhere softened, and presented some ulcerations in the ascending colon. The liver and pancreas were natural; the spleen was soft and voluminous.

Observation XL.

425. A sempstress, aged 45, of pretty strong constitution, although constantly subject to difficult digestions, had been ill fifteen days when she was admitted into La Charité, 4th June, 1824. Her illness had commenced with cough, expectoration, and a pretty copious hæmoptysis which had lasted eight days, and had since been frequently repeated, especially during the last four months. From the same period the dyspnœa had become considerable, she had frequent pains in the left side of chest, almost constant rigors and perspirations, had lost her flesh and appetite, vomiting nearly every thing she took. For three months epigastric pains, frequent colics, with mucous and bloody stools were associated with the preceding symptoms. She had not ceased her occupation. 9th.—Some emaciation; skin rather yellow; headache; pains in the limbs; expectoration frothy, white or greenish, semi-opaque. Under the left clavicle, where the pains had been almost constant, percussion was very dull; the respiration was cavernous, and pectoriloquy very distinct over three inches of surface; below this there was some cavernous ronchus. On the right side the respiration seemed natural. Appetite feeble; tongue moist, of good colour; cold drinks insupportable; epigastrium very sensible to pressure, offering resistance to the hand, which extended to the right false ribs.—(℞ Decoction of Polygala, with quince syrup; julep; three rice creams.)

On the following days there was copious diarrhœa, and from the 18th to 20th, constant nausea, with complete anorexia. A mucilaginous mixture with syrup of poppies was prescribed, and after three days the symptoms abated, the appetite returned, and she was soon able to eat one-fourth of the house allowance, with only a slight sense of weight in the epigastrium; no change in percussion or auscultation. 20th July, at 11, a. m., when free from suffering, she was attacked with *pain near the inferior angle of scapula*, which was at first moderate, then *suddenly* very violent, with dyspnœa, anxiety, continual cough, and orthopnœa. These symptoms did not abate during the night, and the pain frequently seemed to extend from the back over the whole of chest, as far as the umbilicus, again returning to the back.

In the morning the respiration was extremely difficult, thoracic, and 50 in the minute; the patient said she was suffocating, and no posture was easy; the face was altered, without however an expression of intense suffering; the pain in the back was acute, and the slightest percussion on the chest insupportable; the percussion was clearer on the right than the left side; respiratory murmur absent, except posteriorly and superiorly; no metallic tinkling; pulse regular, small, and weak, 120; constant palpitations; all these symptoms persisted; the anxiety increased; there was no change in auscultation, and after intense suffering, sometimes interrupted by a very transitory stupor, she expired on the 23d, at 12, a. m., three days after the invasion of the pain.

Sectio Twenty-eight Hours after Death.

Exterior.—Considerable emaciation.

Head.—Some arachnoidien granulations on either side of the longitudinal fissure; pretty thick sub-arachnoidien infiltration; cortical substance of brain rather pink.

Neck.—Larynx and trachea natural.

Thorax.—An incision made into the right side of chest gave exit to an inodorous gas; the pleura which lined the dorsal region was covered by a soft false membrane, in contact with four ounces of turbid fluid. The lung occupied rather less than one-third of the thoracic cavity, adhering for about three inches to the surrounding parts, by means of a false semi-cartilaginous membrane, half a line thick. Immediately below the adhesion posteriorly, there was a rounded opening, three lines in diameter, communicating with a small excavation, lined by a very thin false membrane, in contact with sound lung. This small cavity neither communicated with the bronchi, nor with a very large excavation just above it, which was invested by a double false membrane, one layer of which was soft, the other semi-cartilaginous. In the three lower fourths of this lung there were only some grey semi-transparent granulations. The left lung adhered to the costal pleura in its upper half, presenting at its summit a large excavation communicating with the bronchi, and also numerous small cavities; in the two upper thirds there were numerous grey granulations, surrounded by a yellowish, moist, semi-transparent substance, homogeneous, and entirely deprived of air; the remainder of the organ was red and hepatized. Two ounces of serum in the pericardium; heart sound.

Abdomen.—The liver was voluminous, uneven, deeply grooved for the suspensory ligament, rather red, especially in the right lobe; it covered the stomach, and extended nearly to the umbilicus. Stomach was contracted; its internal surface nearly everywhere covered by mucus, presenting near the cardia a white space about four inches in surface, where the lining membrane was extremely thin, pale, and soft as mucus; the adjoining portion was mamillated, pink coloured, and thickened to the right; very thin and of a bright red to the left. Near the pylorus were numerous red bands, one inch long by three lines wide, where the mucous membrane was thin and depressed. In the small intestine it was red and injected, but of normal thickness and consistence; in the colon it was red, softened, and with small ulcerations.

OBSERVATION XLI.

426. A woman, aged 32, tall and strongly built, entered the hospital, 11th September, 1823. She had constantly coughed and expectorated the last eleven months, with frequent hæmoptysis and pains between the shoulders; rigors, followed by heat and perspiration, with epigastric pains, were present from the commencement.

Her breathing had been affected for a long time. The day after admission the expression was animated; headache; speaks hurriedly, with occasional aphonia; attitude easy; auscultation natural, except on the right side posteriorly and superiorly, where it was rather cavernous; some dyspnœa; expectoration greenish; no pectoriloquy; pulse rather quick; heat elevated; tongue clean and moist; appetite depressed; pain on pressure in epigastrium; constipation.—(℞ Infusion of Iceland moss; pectoral tissue; mucilaginous mixture, with syrup of poppies; emollient enema; one-eighth of house allowance.)

Up to the 20th December, when she expired, the following is the result of our observations:—In the beginning of October, the patient complained of great heat between the shoulders; there was resonance of the voice, and cavernous respiration in the same point and under both clavicles, especially the right; percussion everywhere clear; expectoration puriform.

December 4th.—Doubtful pectoriloquy between the shoulders, and under the left clavicle; cavernous ronchus in the same point, over a space of six inches. In the night of the 19th, some acute pains were felt in the back; in the morning these had diminished, without any evident increase of dyspnœa. The following night she was attacked by a *violent and sudden pain* along the vertebral column, accompanied with dyspnœa and anxiety. The next morning the patient was in the sitting posture, and spoke only of her pain and difficulty of breathing, expressing her surprise at the suddenness of the attack; the countenance was altered, and percussion clearer to the left, posteriorly and laterally, than on the right side. Over the same extent, instead of the respiratory murmur there was only a mucous ronchus, which appeared to traverse an empty space, before arriving at the ear; there was no metallic tinkling; and on the patient's lying down and rapidly rising, no peculiar sound was heard; the breathing was very frequent, with great agitation; she expired at 10 o'clock the same evening, after intense suffering; the heat was constantly elevated, and the night perspirations copious. These were unsuccessfully treated, during two months, by the aqueous infusion of bark.

In the beginning of October the appetite was feeble; there was a bitter taste in the mouth, the tongue whitish; there were occasional vomitings during the paroxysms of the cough; these were present with still greater anorexia and a natural state of tongue, on the 4th December. On the 10th, the thirst was more urgent; all drinks produced a sense of weight in epigastrium; during several days there was copious diarrhœa. The emaciation was rapid, and on the 4th Dec. the left arm was œdematous.

Sectio Thirty-four Hours after Death.

Exterior.—Considerable œdema of left arm.

Head.—Three small spoonfuls of serum in the lateral ventricles.

Neck.—Trachea and larynx natural.

Thorax.—Only a small quantity of gas escaped from the left side, which contained about three pints of sanguinolent fluid, without any fragments of albumen. A soft membrane, of a deep red colour, and one-third of a line thick, everywhere invested the lung and thoracic parietes. The summit of the lung for two inches and a half was intimately adherent to the neighbouring parts; and almost immediately beneath this adhesion posteriorly, there was a rounded opening, about the size of a pea, communicating with a vast excavation, containing a very small quantity of a greyish fluid, similar to what was in contact with the diaphragm. This cavity communicated with the bronchi. The upper five-sixths of the lung was transformed into an indurated greyish semi-transparent substance, interspersed with numerous tubercles and small excavations; these communicated with each other, and in some points were only separated by a very thin layer, from the thoracic cavity; the lower sixth of the lung was crepitating; the bronchi were of a pale pink colour. There were some excavations in the summit of right lung, and at its base some crude tubercles; heart one-third less than its usual volume; aorta everywhere of a bright red.

Abdomen.—Stomach larger than usual; lining membrane of a pale rose colour, mamillated anteriorly and in a portion of the left extremity; in the same points it presented some ulcerations, from two to six lines in diameter; in the rest of its extent it was of normal consistence and thickness. In the small intestine it was pale and firm, and in the lower fifth the glandular patches were ulcerated; the mucous membrane of large intestine was pale; the ulcerations diminished in frequency on approaching the rectum, where only one existed. The liver was soft, easily torn, the bile rather fluid, and not high coloured; spleen softened; cortical substance of kidnies redder and moister than usual; pancreas indurated; uterus healthy.

OBSERVATION XLII.

427. A woman, aged 26, of feeble constitution and extreme sensibility, entered La Charité, 15th November, 1823; she had lost her flesh the last two years, which she ascribed to mental anxiety. Though little liable to cold, she had constantly coughed and expectorated during the last five months, and during the first fifteen days was sensible of fever, with headache, oppression, and the expectoration was occasionally bloody; the symptoms were subsequently much milder. During the last six weeks her appetite had almost ceased, and she had frequent colic, also rigors, followed by heat and night perspiration. November 16th.—Expression rather animated; considerable weakness, with marked emaciation; voice feeble, husky, the last two months; cough frequent; expectoration greenish, with a tendency to form distinct masses; respiratory murmur weaker in the upper half of left side than in the right, in the corresponding part; elsewhere the respiration was natural, and no resonance of voice or pectoriloquy could be detected; heat moderate; pulse 100; and the preceding evening her usual rigors had returned at 11, p. m. Tongue rather red on the edges, villous and yellowish in the centre; appetite diminished; epigastrium yielding; the right lumbar region resisting, without evident tumour; stools regular.—(℞ Infusion of Iceland moss; one-fourth of house allowance.)—The febrile paroxysms inconveniencing the patient, the sulphate of quinine was employed; but on account of the uneasiness, vertigo, epigastric pains, &c. it was suppressed on the 27th. The rigor had ceased, though the heat returned at the usual hour.

December 4th.—Cavernous respiration under the left clavicle; constipation, anorexia, return of rigors. On the following days the cough provoked nausea, and the constipation was succeeded by copious diarrhœa.

In the night of the 1st January, she experienced *suddenly* a sensation on the left side of chest, similar to what would have been caused by the circulation of a gas from below upwards; the breathing at the same time became very difficult; there was a tendency to fainting, and almost immediately afterwards a very acute pain behind the left mamma. In the morning, this pain continued; it was deeply situated; the breathing was hurried, and the decubitus on the right side, with much general uneasiness; the sensation of the presence of a gaseous fluid no longer existed. On the left side the chest resounded like a drum; no respiration or metallic tinkling could be heard; the aphonia was complete, face pale, lips discoloured, and the patient was threatened with syncope, if she attempted to sit up; pulse feeble, small, 116.

The state of the respiration having been accurately observed up to the 16th January, the result of our observations was the following: 4th.—Under the left axilla some very weak respiration, with slight mucous ronchus under the clavicle. 5th.—Metallic tinkling two inches below the clavicle when the patient spoke. 7th, and following days, it extended more over chest, and was caused by inspiration as well as speaking. The pain becoming more acute, leeches were applied on the evening of the 10th. The next day the dyspnœa was increased, breathing very hurried, pain diminished, metallic tinkling, as for some days past, heard over the three lower fourths of chest, which gave a very clear sound on percussion; no change up to the 16th. On the 17th, the dyspnœa much increased; percussion of left side was still clear. She expired on the 18th, without suffering, a few minutes after expressing to M. Chomel her inclination to sleep.

From the commencement of the pneumo-thorax, the decubitus was constantly on the right side; the aphonia occasionally disappeared; the cough was not very frequent; the expectoration greenish, in separate masses; pulse small, weak, and frequent; there was little mental depression, and hope of recovery was present to the last. There was no appetite; alternately constipation and diarrhœa; some mucous vomitings for a few days after the perforation.

Sectio Twenty-three Hours after Death.

Exterior.—Very considerable emaciation. (Brain and larynx not examined.)

Thorax.—Percussion of left side clear only anteriorly; it contained rather more than 100 cubic inches of a gas, which proved to be carbonic acid; the remainder of the thoracic cavity on this side, that is, about three-fourths, contained a turbid greenish fluid. The left lung was scarcely as large as twice the closed hand, adherent at its summit for about two inches, and immediately below this adhesion, posteriorly, there was a rounded opening of two lines and a half in diameter with thin edges, and communicating with a cavity about the size of an ordinary apple; it was anfractuous, and lined by tuberculous fragments lying on a thin false membrane, pierced in several points by the orifices of the bronchi. Below the perforation were numerous yellow patches, corresponding to softened tubercles, on the point of emptying themselves into the pleural cavity; the remainder of the lung was soft, not crepitating, and containing tubercles which diminished in number towards the base. The pleura was everywhere invested by a thin false membrane, firm superiorly; and in contact with the diaphragm, there was a greenish substance of gelatinous consistence, enough to have filled an ordinary tumbler. The right lung presented some adhesions, with a small excavation and tubercle in its upper lobe. Heart small; aorta healthy.

Abdomen.—The stomach contained a moderate quantity of viscous and yellowish mucus; the lining membrane was of a tawny colour, nearly everywhere mamillated, of good consistence, and partially destroyed over a surface of two lines in length on the small curvature; that of small intestine presented in its lower half numerous small ulcerations, was of a bright red colour, and softened near the cœcum. The lining membrane of large intestine was throughout as soft as mucus, red and ulcerated in the ascending colon, with a light pink tint over the lower portions; the liver extended for a breadth of three fingers beyond the ribs, was voluminous, of a dull yellow colour spotted with red, of moderate consistence, and rather adipous. Bile pale and thin; the other viscera natural.

OBSERVATION XLIII.

428. A porter, aged 26, short, well made, with red hair and well developed muscular system, was admitted into the hospital 8th of November, 1824; he had been employed in the service of the army from his 12th to his 24th year; had enjoyed good health, and dated his present illness eight months; he had

coughed and expectorated during the same period, and attributed his cold to the closeness of the office where he pursued his occupation. The cough had greatly increased, came on in paroxysms, and during the last five months the expectoration had become opaque; in the fourth month, during fifteen days, he had experienced acute pains in the back, and these had been felt in the left side of chest for the last fortnight; at the commencement there was no fever, but for three months there had been increased heat in the evenings, with constant copious night perspirations. The appetite had not diminished, but the last two months it had been rather more urgent than usual; bowels regular. The emaciation was evident three months from the commencement of the first symptoms, and from the same period the patient had ceased his occupations.

Nov. 9.—Great weakness; little emaciation; a slight intermitting pain on the left side of chest; moderate dyspnœa; cough frequent and in paroxysms during the night; expectoration scanty, greenish, opaque, not in distinct masses; respiratory murmur confused, with mucous ronchus and some dulness of sound under right clavicle, with resonance of the voice posteriorly in the corresponding point; on the left side the respiration was weak posteriorly; pulse slightly accelerated; heat and copious perspirations last night; appetite good; tongue clean; abdomen indolent; stools rare.—(℞ Infusion of Iceland moss; mucilaginous mixture, with a grain of opium in the evening; a quarter of house allowance.) 20th.—Immediately under the right clavicle it seemed as if a small puff of air entered the stethescope when the patient spoke. On the morning of the 28th, the sputa presented some streaks of blood, and in the evening there was an expectoration of about twelve ounces of blood. This continued more or less until the 8th of December, and seemed to diminish after the use of a mucilaginous mixture, containing a drachm of powdered ratanhy root, and it disappeared completely on the third day; three bleedings of ℥x each, with cooling drinks, had been previously tried without success. During the first four days of the hæmoptysis, there was a crepitating ronchus on the left side, everywhere posteriorly, and in the lower half anteriorly. 9th.—Respiratory murmur nearly natural on the left side; sputa white, greenish, and in distinct masses; thirst not urgent; pulse calm the appetite, which for a time had diminished, returned; there was no diarrhœa; dyspnœa increased, the cough continued strong during the night. There was little change up to the 30th; the cough usually excited pain in the left side. 5th.—Pectoriloquy evident under the right clavicle, with slight crepitation in the lower half of the same side; it was nearly universal on the left, and on the 28th, was confined to this side. 31st.—The patient complained of increased suffering during the cough, in the left side. In the evening the pain became *suddenly* very acute, with urgent dyspnœa; the next day the difficulty of breathing and anxiety were extreme. January 2.—At 7, a. m., the patient was quite conscious, and clearly narrated what had occurred since the invasion of the pain, but already his sight became confused: the face was bathed in perspiration, the dyspnœa extreme, breathing very rapid, percussion of chest much clearer anteriorly on left side than on the right. In the same region no respiratory murmur or metallic tinkling could be heard; suffocation seemed imminent, and at 2, p. m., he expired. The same day, the expectoration was greyish, of a disagreeable aspect, like viscid size. There were some pains in the region of larynx.

From the 15th of December, the heat during the evening was considerable; perspirations copious during the night, without rigors; thirst moderate; the appetite gradually diminished, and then entirely disappeared; diarrhœa only present the last five days.

Sectio Twenty-three Hours after Death.

Exterior.—Muscles thick, firm, well coloured; emaciation only commencing.

Head.—A small spoonful of serum in each lateral ventricle; the same quantity at the base of skull; no other alteration.

Neck.—Epiglottis and larynx natural; lining membrane of trachea red, of normal consistence and thickness, presenting immediately above the bronchial bifurcation two small irregular ulcerations, from one-third to a fifth of an inch in surface, with a thickened state of the sub-mucous layer in the corresponding point.

Thorax.—An inodorous gas escaped through a small incision made into the left side of chest. There was a space of from two to three inches between the lung and parietes of thorax, augmenting from above downwards; the lung was fixed by four white, thin, firm bands, uniting the pulmonary and costal pleuræ. Its base, and the corresponding portion of diaphragm, were lined by a soft false membrane, with a reticulated appearance, thick, and in contact with about twelve ounces of a pretty clear reddish fluid. Its upper lobe was enveloped by another false membrane, half a line thick, and semi-cartilaginous; and at its lower portion there was a rounded yellow patch, a line in diameter, corresponding to a softened tubercle, which had been partially discharged into the pleural cavity. The opening was in part closed by a small quantity of tuberculous matter, and the cavity lined by a thin, soft, light coloured false membrane; there was no communication with the bronchi. Towards the central part of the same lobe there were three excavations, similar to the one we have described, surrounded by healthy lung, and in the summit two other smaller ones, surrounded by indurated greyish tissue where the red and thickened bronchi terminated. The lower lobe was slightly engorged, and contained some semi-transparent granulations. The right lung adhered everywhere to the costal pleura by dense cellular membrane, its summit was indurated, and presented four excavations, filled with greenish pus, and surrounded by a firm greyish structure; this was intersected by numerous white septa, irregularly distributed, and exuding, when pressed, a very small quantity of greyish fluid. The *communicating* bronchi were of a bright red and thickened. The lower lobe was a little engorged, contained two or three tubercles, and some isolated portions of hepatized lung. The bronchial glands were grey and voluminous, not tuberculated. Heart and aorta healthy.

Abdomen.—Stomach twice its usual volume, reaching below the umbilicus, and containing a large quantity of viscous mucus; its lining membrane was of a dark red colour posteriorly, rather soft anteriorly, where its colour was natural. The glandular portions of small intestine were ulcerated in the lower sixth, with numerous tuberculous granulations, the softening of which seemed to have been the source of the ulcerations; no other alteration. In the ascending colon there were six small greyish ulcerations; the corresponding cellular tissue rather thickened, and here and there destroyed: between these ulcerations there were others still smaller. Throughout the whole of large intestine the lining membrane was a little softened and thickened. The mesenteric glands were reddish and voluminous, not tuberculated. Spleen pale, and nearly twice its usual volume; the other viscera healthy.

OBSERVATION XLIV.

429. An ebonist, aged 42, short, of feeble constitution, but usually enjoying good health, and little liable to cold, said that his chest had never been affected before the commencement of his present illness. He had been ill five months, having relinquished his occupations the last two, without however being confined to his bed. He was attacked, without any evident cause, by a rather violent cough, with clear expectoration. In the beginning of the fourth month this was combined with dyspnœa and acute pains in the right side, requiring the application of leeches and a blister. The expectoration had become very dense the last three weeks, and for ten days the cough had much increased; the thirst was urgent, the heat at night augmented, with copious perspirations. The appetite had diminished from the first, and for nearly three weeks had ceased altogether; considerable emaciation the last two months; has never had rigors, hæmoptysis, or diarrhœa.

January 4, 1825 (the day after his admission), the face was pale, with marked emaciation and debility; cough rare; dyspnœa moderate; decubitus variable; sputa greenish, opaque, not striated; percussion less clear on the right side than the left, especially in the lower half posteriorly and laterally, where it was completely dull; respiratory murmur weak, mingled with a mucous ronchus nearly everywhere on the same side; respiration cavernous, pectoriloquy at the summit of the right lung; it was less distinct on the left side between the shoulder and vertebral column. Voice almost extinct the last two months; no pain, or dryness, or heat, in the region of larynx or trachea. Pulse small, weak, accelerated; tongue moist, whitish in the centre; mouth clammy, with bitter taste; anorexia; no thirst; epigastrium sensible to pressure; occasional nausea from cough; three natural stools the preceding evening. Patient is calm, and utters no complaint. There was no sensible change on the following days; the larynx and trachea were always insensible to external pressure. 10th.—He complained of pain in the right side of chest. On the 13th, during the night, he was attacked *suddenly* with a very acute pain in the left side, accompanied with great uneasiness and dyspnœa. In the morning the face was pale, and the expression altered; the pain was rather less acute, with considerable dyspnœa; decubitus not very elevated; percussion very clear over the whole of left side. Auscultation was not practised. He died the same day at 4, p. m., retaining perfect consciousness to the last.

Sectio Forty Hours after Death.

Exterior.—Considerable emaciation.

Head.—A small spoonful of fluid in the lateral ventricles; no other alteration.

Neck.—Epiglottis natural. Numerous superficial ulcerations on the vocal cords and for about three lines below them. Trachea everywhere of a bright red; its mucous membrane was entirely destroyed over its fleshy portion, with numerous small, rounded, superficial ulcerations in the rest of its extent; these existed also in the bronchi, being situated between the rings. The sub-mucous tissue corresponding to the large ulceration in the trachea was generally thickened; in some points it was destroyed. Bronchial glands large and greyish, with some tuberculous deposit; cervical glands healthy.

Thorax.—Percussion of left side very clear anteriorly, the cavity was partly occupied by the lung (which adhered by its summit for about three inches) and a pint of dirty coloured serum, containing numerous yellow albuminous fragments. A very soft false membrane invested the lower lobe, at the upper part of which, was an opening of two lines in diameter, communicating with an excavation lined by the remains of tuberculous matter, without any false membrane, and communicating with the bronchi. This lobe contained numerous grey, semi-transparent granulations; the summit of the upper lobe was indurated, with a large quantity of grey and blackish matter, in the centre of which was a tubercle about the size of a common nut; elsewhere there was very little greyish matter, but some irregularly dispersed tubercles; the right lung adhered to the costal pleura by means of a firm false membrane two lines thick inferiorly; the upper lobe was almost entirely converted into a grey shining elastic substance, surrounding numerous dull white granulations; it presented at its summit, two excavations about the size of a nut, filled with a turbid reddish fluid and scattered tuberculous fragments, but no false membrane; inferior lobe contained a similar cavity, with some grey granulations and engorged portions. Heart healthy; some irregularly distributed redness in the aorta.

Abdomen.—Gastric lining membrane presented a pink tint in the great cul de sac, where it was extremely softened; it was perfectly healthy near the pylorus, rather softened elsewhere, and partially ulcerated in some points of its posterior surface. In the middle third of small intestine there were numerous transversal ulcerations, three of which encircled the gut; lower down the glandular portions were nearly all ulcerated, with destruction of the corresponding mucous membrane; the sub-mucous tissue was rough, thickened, presenting numerous small excavations; elsewhere the mucous membrane was healthy.

In the ascending colon there was one large ulceration, with numerous smaller ones in the rectum and cœcum; the lining membrane was softened in the lower half of the large intestine; the other abdominal viscera were healthy.

430. If we now glance over the preceding observations, we find that at a variably advanced period of phthisis, the patients experienced, *suddenly*, in one side of the chest, a violent pain with usually extreme dyspnœa and intense anxiety, which were succeeded by all the general symptoms of acute pleurisy; that these symptoms persisted unabated or with slight remissions to the last, death following their first appearance in twenty-four to thirty-eight hours (*Obs.* 39, 41); that after death, was found a variable quantity of air, pus, or bloody coloured fluid in the side of chest where the pain had been felt, and also a perforation of the lung from the opening of a tuberculous excavation into the pleural cavity. The connexion of the symptoms with the state of the lungs after death is so striking, that the simple exposition of the facts is sufficient for its demonstration. The pain is caused by the passage of the tuberculous matter into the pleuræ, while the dyspnœa and anxiety are the effect

of the more or less rapid effusion at first of air, and afterwards of a variably composed fluid; so that whenever, in a case of phthisis, a violent pain in one side of the chest shall come on *suddenly* accompanied with great dyspnœa, anxiety, and the general symptoms of acute pleurisy, we may conclude that perforation of the lung has taken place in the manner we have described. At least, it was by these symptoms that we diagnosticated with M. Chomel the accident in question, in the examples we have just detailed.

431. These symptoms are besides so rational, that we might almost have anticipated their presence *à priore*; and from the analogy existing between the perforation of the small intestines and the lungs, they might still more easily have been foreseen. There is in fact, in both cases at the instant of perforation, an effusion of irritating fluid on a serous membrane; and, as sudden pain with all the symptoms of intense inflammation are present in one case, we might naturally expect to find them in the other.

432. Sudden dyspnœa and anxiety, independently of pain, may also lead us to suspect the presence of perforation. Of this the following observation is a proof.

Observation XLV.

433. A woman, aged 24, of rather delicate constitution, was admitted into the hospital of La Charité, 28th September, 1824. She was subject to shortness of breath from her infancy, was little liable to cold, and then for only a few days; had never had pneumonia, and had been now ill three months and a half. Without any appreciable cause, she was attacked with cough, and white expectoration, which gradually became opaque and greenish; rigors at first frequent and irregular, afterwards rarer; there had been increase of her habitual dyspnœa, night perspirations, and since the third month increased heat in the evening; appetite diminished; vomitings often occasioned by cough; from the first the emaciation was evident; no diarrhœa.

29th September.—Face rather pale; considerable debility; moderate emaciation; sleep often interrupted; pain in left shoulder from the commencement, worse during the night;

sputa greenish, opaque, not striated, surrounded by a very frothy mucus; percussion nowhere very clear; resonance of the voice and tracheal respiration under the left clavicle; pulse rather quick; tongue whitish; bitter taste in mouth; appetite pretty good; digestion easy; abdomen yielding, without pain; occasional colic the last six weeks; constipation.—(℞ Decoction of Iceland moss; mucilag. mixture; two cups of milk; a quarter of house allowance.)

From this period until death, which took place on the 1st of January, the cough was always very troublesome, especially during the night, when the patient was sometimes obliged to retain the sitting posture to relieve the dyspnœa. The pains in shoulder did not increase; from the 25th to the 28th they were very acute in the left side, without any increase of dyspnœa. At this period, percussion was clear under the left clavicle, and we heard indistinct pectoriloquy both here and in the corresponding point posteriorly; lower down, the respiration was coarse, mingled with dry crepitating ronchus. 24th December.—Distinct pectoriloquy and a cavernous ronchus replaced the crepitation; difficulty of breathing as before; decubitus horizontal. 26th.—The dyspnœa became, *suddenly*, very intense, without having been preceded or followed by pain in the chest. In the morning of the 27th, it was still urgent; the decubitus was elevated; the heat considerable; pulse rapid; face injected; expression animated; speech hurried; great anxiety; percussion of left side infinitely clearer than on the right; the respiration was confused and distant, and after every respiratory movement, there was a sound similar to what we produce by blowing into an empty bottle; the abstraction of five ounces of blood produced only momentarily relief; the next day the dyspnœa and anxiety were increased, she said she should die of suffocation: no change in auscultation or percussion during the following days, and the patient expired during the night of the 31st, after experiencing every gradation of suffocation, but without any pain in the chest. The sputa assumed rapidly the nummulated form, were without smell, although the patient's breath was very fetid after the 26th of December. From the commencement of the extreme dyspnœa the heat had continued elevated, rigors rare, night perspiration variable. The appetite gradually diminished, and from the 1st of December entirely disappeared; the vomitings yielding about the middle of November to the eau de Seltz. For some days the epigastrium was slightly painful; the thirst was never urgent; diarrhœa came on in October; during the first twenty days it was scanty and intermittent, afterwards continuous and copious; fæces yellow, soft, without blood or mucus; the patient's spirits were pretty good to the last; she dreaded death and constantly referred to the subject. She always took the julep in the evening, with a grain of opium in mucilage during the day; her drink consisted of rice water and the white decoction; the food was diminished with the diarrhœa and decreased appetite.

Sectio Thirty-two Hours after Death.

Exterior.—Considerable emaciation.

Head.—Some miliary arachnoidien granulations in groups, adherent to the dura mater; brain very firm; cortical substance extremely pale; two small spoonsful of fluid in each lateral ventricle, rather less in the inferior occipital fossæ; no other alteration.

Neck.—Larynx and epiglottis natural: trachea of rather a deep red, with two small ulcerations.

Thorax.—Left lung adherent over its three upper fifths, by means of a dense false membrane; it was elsewhere free and invested with a reddish soft membrane, prolonged over the diaphragm and ribs, enclosing a reddish turbid fluid, which was similar, except in density, to what we find in tubercular excavations. Immediately below the adhesions, there was an opening of five lines in diameter in the lower lobe, communicating with a cavity which extended upwards into the interlobular fissure. The excavation was lined by yellowish tuberculous fragments, traversed by numerous bands of about a line thick, composed of a very dark grey semi-transparent substance, in which no vascular ramifications could be traced: several small excavations communicated with the one described; a very small portion of the lobe was permeable to the air; at the summit of the upper lobe was a similar and still larger excavation; the remainder of the lobe presented numerous small cavities communicating together, with a blackish grey substance in their intervals, so that it was nearly wholly incapable of respiration; the right lung offered inferiorly some adhesions, and in its upper lobe numerous softened tuberculous masses, the larger of which were in the centre; these were less numerous in the lower lobe, which was partially engorged, and solidified without hepatization in the remainder of its extent; bronchi rather red on either side, extensively communicating with the excavations; the bronchial glands were greyish, voluminous, not tuberculated. Heart small; aorta healthy.

Abdomen.—A pint of clear fluid in peritoneal cavity; stomach contained much viscous mucus; and in the centre of the great cul de sac, the sub-mucous vessels were much distended, and the lining membrane soft as mucus over one-half of this surface; it was elsewhere healthy. Glandular patches in lower fifth of small intestine thicker than natural, nearly all more or less ulcerated, as was also the sub-mucous tissue; in the intervals there were numerous yellowish granulations, many of which were ulcerated; the mucous membrane in the other portions were healthy. Some small ulcerations in the cœcum; lining membrane of large intestine pale, everywhere thicker than natural; rather softened in the ascending colon, and elsewhere not firmer than mucus; sub-mucous layer white, opaque, and much thickened. Mesenteric glands red and voluminous, not tuberculated; the meso-colic small and healthy; liver fatty; bile natural; spleen twice its usual volume; the other viscera healthy.

434. Notwithstanding the absence of pain, we did not hesitate to diagnosticate perforation of the lungs, from the *sudden* invasion of the dyspnœa and anxiety. The diagnosis here as in the preceding cases was assisted and confirmed by auscultation and percussion. Had the better symptoms been alone our guide, the pneumo-thorax would have been much less valuable relative to the point we are examining, since it might have arisen from other causes than perforation of the lungs.

435. Sooner or later a certain quantity of pus or purulent fluid was conjoined to the presence of a gas, and when this was the case, the metallic tinkling was produced by the inspiration, expiration, or speaking. This however depended on the communication of the pleural cavity with the bronchi (as in *Obs.* 39, 41, &c.) when this communication did not exist the

metallic tinkling was absent. This may also be the case, when the effusion of air is not accompanied by a fluid, or when the latter is too scanty. Auscultation cannot, therefore, detect perforation until some time after its occurrence; and in those instances where no communication with the pleural cavity exists, the diagnosis depends entirely on the other symptoms.

436. The quantity of fluid necessary for the production of the metallic tinkling, does not seem to be very considerable, since we have heard it (*Obs.* 42), when percussion detected no dulness of sound. On the other hand, a large accumulation of fluid did not appear to interfere with its presence.—(*Obs.* 39.)

437. The seven preceding observations, including another which we have not thought it necessary to detail, are the only examples we have met with; and in all, the rational symptoms, independently of auscultation and percussion, were sufficient for the diagnosis of the lesion. This seems, however, not to be always the case; for in the three examples (*Obs.* 31, 39, 41) related by Laennec in his important work on auscultation, these symptoms do not appear to have been present. When this is the case, the discovery of the complication by auscultation and percussion may be considered accidental, and the production of the metallic tinkling depending on a communication existing with the bronchi.

438. Percussion and auscultation would also be the only means of diagnosis in our power, if the symptoms were but slightly marked, since they would then indicate a pneumothorax, of which, perforation of the lung, is incomparably the most frequent cause.

439. There were some variations in the *pain* important to notice. Acute, in Observations 39, 40, 41, 43, it was much less urgent in the others, though from its suddenness, the accompanying dyspnœa, and the modification in the physical condition of the chest, it did not cease to be important for the diagnosis. We have in fact, seen in Observation 42, that at the moment, and shortly preceding the pains, the patient thought she perceived the circulation of a gas in the left side of chest; a sensation no doubt produced by the passage of the air into the corresponding cavity. Instead of being surprised at the feeble variations in the pain, we ought rather to wonder they were not more considerable; it was equally acute in Observations 40

and 43, as in the others, and in both these instances it was caused by the passage of the contents of a very small excavation into the pleural cavity, which did not communicate with the bronchi; whilst in the others, both the excavation was considerable and the bronchial communication existed. Lastly, the pain was absent in one case (*Obs.* 55), where the perforation was large, the cavity extensive, and the quantity of the effused irritating matter considerable.

440. The dyspnœa and anxiety, except in Observation 42, were very urgent, and in this exceptional case, the slightest movement produced a tendency to syncope. This example was also interesting, on account of the decubitus on the right side with the head low, while the majority of the others retained the sitting posture.

441. It is also worth observing, that notwithstanding so great and sudden an obstacle to the circulation, the face was generally of its natural paleness; a fact, however, which must not be regarded as extraordinary, since we frequently observe patients exceedingly pale when the dyspnœa is extreme; as for instance, in great dilatation of the heart, and even in some cases where the right and left cavities communicate.

442. The time elapsing from the moment of the perforation to the fatal termination must also be noticed. Death in fact took place in sixteen, twenty-four, thirty-six, seventy-two hours, six, twenty, and thirty-six days, from the origin of the first symptoms; the cause of these differences is not easy to explain. We may in vain seek it in the relative strength of the patients; for the individual who forms the subject of Observation 40, and who died after seventy-two hours, was apparently as strong as the patient of the 38th, who survived thirty-six days. We cannot refer it either to the difference in treatment, the latter having remained during the three days following the perforation, in his own house, suffering acute pain, without any remedies being applied.

The variations in the size of the excavations, or the quantity of the fluid which escaped into the pleural cavity, also fail to afford any assistance in the inquiry, for where patients died from thirty-six to seventy-two hours after the accident, the cavity was small, not-communicating with the bronchi, and necessarily discharging only a small quantity of matter into the pleura. We insist on these details, because it is important that the physician should be aware, that in certain complications, mortal in their nature, the fatal termination may take place some hours or some weeks after their invasion, without his being able to explain on what these differences depend.

443. In five of our cases the perforation occurred at the same point, viz. opposite the angle of the third or fourth ribs. This fact is interesting, both from its correspondence with the seat of the pain in the commencement, and because it is no doubt depending on the progressive development of tubercles from above downwards. We must also recollect that out of the eight cases, seven were on the left side, where we have already seen that the tuberculous affection was more frequent and farther advanced than on the right. We have only found a single perforation in the same lung; but in many cases, there were numerous yellowish spots, corresponding to softened tubercles; these were only separated from the pleura by an extremely thin layer, and they seemed on the point of opening into the pleural cavity. If we consider the frequency of this disposition, we may be surprised that perforation is not more common; this is no doubt to be attributed to the adhesions which almost invariably take place. For the summit of the lung, where the sides of the excavations are often solely formed by the false semi-cartilaginous membrane, this is evident; occasionally also the tuberculous matter is immediately in contact with the ribs, and in some cases, traverses the intercostal muscles. In these examples had there been no adhesions, it would have escaped into the pleural cavity.

444. We must also notice the rapidity with which the effusion of turbid or sanguineous fluid may occasionally be formed. It was considerable in Observation 41, where death took place in twenty-four hours after the perforation, and where percussion during the first twelve hours was clear. In this case then the effusion took place in less than twelve hours. In Observation 42, where the effusion was serous, the progress was equally rapid. These facts are however strictly in accordance with what we observe in simple pleurisy, and more especially in the cure of hydrocele by injection, when a considerable effusion of purulent fluid is formed in the tunica vaginalis in a few hours.

445. In cases where death occurred twenty-four hours after

the perforation, there was also a soft false membrane, probably organized, everywhere investing the lung and pleura.

446. We shall pass over many other circumstances in these observations calculated to arrest our attention, only remarking that the quantity of fluid in the cerebral ventricles, as in the cases of sudden death, was very small; that notwithstanding the sudden obstacle to the circulation, prolonged in some cases during several days, the mucous membranes were not redder than where the circulation was much less impeded; this seems to prove that, to produce congestion of the mesenteric vessels and mucous membrane, the impediment to the circulation must have existed a longer time. Lastly, we will observe, that notwithstanding the sensibility of the patient, who was the subject of Observation 44, and the numerous questions relative to the state of the trachea, we detected no symptom calculated to make us suspect the presence of the immense ulceration discovered after death.

447. The cases detailed in this chapter are relative to individuals in whom phthisis had existed from six to sixteen months, and where the age varied from 24 to 45. Additional observations will determine whether perforation of the lung takes place in very chronic cases, and in old people; for as yet the number of facts is much too inconsiderable to justify any conclusion on the subject.

CHAPTER X.

SUDDEN DEATHS.

448. We have already seen how many causes, foreign to the existence of tubercles in the lungs, accelerate the fatal termination in cases of phthisis; but there are instances where death occurs still more suddenly and unexpectedly. Sometimes the appearances after death, seem to offer some explanation, while in others the most rigorous inspection of all the organs is not attended with any satisfactory result. The following observations are in proof of both these assertions.

§ 1.—*Unexpected deaths, which may be explained more or less plausibly by the state of the organs after death.*

Observation XLVI.

449. A jeweller, aged 22, short, of feeble constitution, four years ill, was admitted into the hospital, 10th April, 1823. His illness had commenced with a slight cough and expectoration; these had since continued, and for the last seven months were very troublesome, being associated with dyspnœa, daily rigors, and night perspirations. During the three last days of March he had experienced a rather acute pain in the left side of chest, with increased dyspnœa. For the last year his appetite had diminished, and there had been frequent uneasiness, with sense of oppression in the epigastrium; his strength had much diminished; no diarrhœa or hæmoptysis. 11th.—Face natural; considerable emaciation; slight epigastric oppression. Cough frequent during the night, sputa greenish, opaque, ragged, and surrounded by a limpid fluid. Percussion obscure at the superior part of right side, clear everywhere else; respiratory murmur natural on the left; cavernous under the right clavicle, with a rather fine crepitation towards the centre of the same side, both anteriorly and posteriorly. Pulse regular, not frequent; tongue moist, villous in the centre, natural on the edges; very little appetite; stools rare; abdomen indolent. The patient complained of nothing but slight epigastric uneasiness.—(℞ Decoction of Iceland moss; julep; one-eighth of house allowance.) 21st.—Dulness of sound in right side, occupied a larger space; appetite improved; stools regular; no perspirations. (Blister to right side.) On the following days, some pain in throat; no appetite; increased heat; and on the 26th, we remarked a slight eruption of red spots, not elevated, extending over the whole body; partial desquamation followed; the pain of throat had ceased for two days; the tonsils and pharynx were natural; pulse fuller and quicker than usual, with some increase of dyspnœa; the anorexia persisted, and the cough excited occasional nausea. 27th.—No trace of eruption; pulse full, 100; respiration accelerated. The patient complained of a pain near the edge of the left false ribs, which he

had felt three days; percussion of same side of chest was everywhere clear, and respiration natural; on the right side no change since the last report. Expectoration as before; tongue natural; one moderately firm stool. The next day, 28th, the breathing not appearing more affected than usual, we did not examine the patient. In the evening he was sitting up in the bed, and asked for food; a few minutes afterwards he expired without any struggling; his companions having only perceived he was not quite so well as usual half an hour previously.

Sectio Twenty Hours after Death.

Exterior.—Muscular system well developed; slight emaciation; some vibices in the extremities.

Head.—Numerous lacerations of the dura mater, giving passage to the arachnoidien granulations; cerebral veins distended; considerable injection of brain and cerebellum. Three small spoonsful of serum in the lateral ventricles.

Neck.—Larynx natural. For an inch and a half below the cordæ vocales, the lining membrane of trachea was red and thickened; below this it was healthy, then again of a bright red, two inches above the bifurcation; this redness extended into the bronchi, especially on the right side.

Thorax.—Right lung adherent to the costal pleura, inferiorly by means of cellular prolongations, and superiorly by a false semi-cartilaginous membrane, from one to three lines thick, and which, by being prolonged over the interlobular pleura, constituted the greater proportion of the sides of a vast excavation, occupying the summit of the upper lobe, and communicating with smaller cavities. The structure of the membrane was not uniform; one part was of a pearly colour, like cartilage; another was yellowish, like the intervertebral ligaments; here and there there were some portions of grey semi-transparent matter. The lower lobe was slightly engorged, and contained numerous grey granulations. The left lung was everywhere adherent, voluminous, firmer inferiorly than superiorly, where there were some half emptied excavations, and grey semi-transparent granulations. In the two lower thirds, its tissue was of bluish grey colour, and the surface formed by an incision, rather granulated; pressure forced out a certain quantity of greyish turbid fluid, not spumous. Heart rather voluminous, but healthy.

Abdomen.—The stomach contained a moderate quantity of milky fluid; its mucous membrane was partially injected, a little softened in the left extremity, and healthy in the remainder of its extent; duodenum natural; many of the glandular patches of small intestine were red and more or less ulcerated; the large intestine contained much mucus, with very little fecal matter, and presented in the ascending colon, some small ulcerations, with tuberculous granulations in the centre of the greater number; the mucous membrane was thickened and detached round their edges, but everywhere else natural. Many of the mesenteric glands were rather red and voluminous; the other viscera healthy.

450. The right lung and a great proportion of the left were incapable of respiration; the left lung was hepatized, and the rapidity with which this had taken place, explains the patient's sudden and unforeseen death. Thirty-six hours before death, the left side was everywhere clear on percussion, and the respiration seemed natural; so that, in this period of time, the whole, or at least the greater part of this lung, had passed from a state of health to the second degree of inflammation, a fact by no means extraordinary, since we have observed it several times under other circumstances. It may be conjectured, from the existence of the pain experienced by the patient four days before death, that there was then some nucleus of inflammation in the substance of the lung, and that this was the case, is not improbable; but this *supposition* does not interfere with the conclusion, that the greater part of the hepatization had taken place in a very short time; perhaps in twenty-four hours. But how do we reconcile the existence of such feeble symptoms with so rapid an alteration of an important organ? How explain the sudden and unforeseen approach of death? We confess our incompetency to give any satisfactory answer to these questions.

451. Among other interesting circumstances attending this observation, we must mention the peculiar and compound nature of the membrane investing the summit of the right lung, and the almost healthy state of the gastric mucous mem-

brane, although the derangement of the digestive functions long preceded the patient's death.

Observation XLVII.

452. A servant, aged 32, and ill sixteen months, entered La Charité, 15th April, 1822. He was short, diminutive, was very subject to cold both before and subsequently to a pleurisy, which attacked him at the age of 25 after repeated exposure to cold in a journey during the winter of 1820 and 1821. Since that period he had coughed, and was liable to some dyspnœa; the expectoration had not accompanied the cough during the first seven months, at the end of which period the emaciation also commenced, and about three months afterwards night perspirations came on and have since persisted; finally, during the last three weeks, there had been diarrhœa and sore throat; he had never had hæmoptysis.

April 16.—Expression nearly natural; cough only troublesome at night; expectoration greenish, opaque, not striated; percussion of chest everywhere clear; great resonance of voice under the clavicles, indistinct pectoriloquy between the vertebral column and right scapula; voice husky for the last two months, no pain in region of larynx; pulse frequent, full; heat moderate, no rigors the last eight days; anorexia, throat painful; free edge of velum and pharynx red; deglutition easy; no pain in epigastrium; four liquid stools the last twenty-four hours.—(Decoction of Iceland moss; quarter of house allowance.)

26th.—Aphonia, sense of heat and prickings in the larynx; velum and pharynx as before; deglutition difficult; three liquid stools; copious perspiration.—(Twelve leeches to the anus; blister to the neck; infusion of violets; mucilaginous mixture.)

May 10.—Aphonia continues; pains in larynx less acute; liquids occasionally returned by the nose, no pain in neck; under the right clavicle and in the corresponding point posteriorly, a coarse dry ronchus, and whenever the patient spoke, the air seemed to enter the stethescope; some of the sputa were coloured; the pulse was only slightly accelerated; heat moderate; tongue natural; very little appetite; abdomen not painful; slight diarrhœa.

On the two following days no sensible change took place, nor was there on the 13th; on the same day, two hours after the visit, the patient was found dead. A mucilaginous mixture, with syrup of poppies, and three rice creams had been prescribed in the morning.

Sectio Twenty-three Hours after Death.

Exterior.—Nothing remarkable.

Head.—A little serous fluid in the upper part of arachnoid; a spoonful in each lateral ventricle; slight injection of cerebral substance.

Neck.—The edges of the glottis were infiltrated, particularly on the right side, where they were a line and a half thick; the lining membrane of larynx was pale and not altered. Immediately below the cordæ vocales, were two ulcerations of three lines in diameter; and two inches above the bifurcation of trachea; on the fleshy portion, there was another ulceration of four lines wide, by eight in length; the intervening mucous membrane was healthy.

Thorax.—Cellular adhesions over the whole of right lung; a very large excavation at its summit lined by a double false membrane, of which the internal layer lay on either healthy pulmonary tissue or white yellowish or grey granulations, which were numerous in the remainder of the lung. The summit of left lung was partially adherent, and contained some small excavations. In the remainder of its extent there were three zones formed of the grey semi-transparent matter, about an inch thick, and separated by layers of pulmonary tissue of nearly the same dimensions, and slightly engorged. This grey substance was interspersed with numerous whitish or yellowish miliary granulations. Heart and aorta healthy.

Abdomen.—Lining membrane of stomach of a violet colour in the great cul de sac, in other respects healthy. That of small intestine presented some brownish red spots, and in the lower fifth numerous ulcerations, generally extending to the muscular layer. The mucous membrane of colon was red in the lower third, with three moderately sized ulcerations in the two upper thirds. Liver rather engorged; the other viscera healthy.

453. If we glance over the state of the viscera we have described, we see, in the brain, an effusion of serum into the lateral ventricles, much less considerable than in many cases where no peculiar circumstances attended death, so that it cannot here be considered a cause of the fatal termination; the state of the lungs did not prevent their continuing respiration for a considerable time. We may make the same remark for the abdominal viscera, so that nothing in the condition of these organs explains the cause of death. The state of the glottis remains to be examined. It will perhaps be thought that the œdema was not sufficient to produce suffocation, and that we have not mentioned any paroxysms of dyspnœa which characterise this lesion. To this we will reply by the relation of a fact which was observed some months previously: it refers to a young man attacked with typhus fever, and who died from violent suffocation, accompanied with the wheezing inspiration; these symptoms came on only two hours before death, and we afterwards found the glottis œdematous, but not more extensively so than in the case before us. *It is possible* then that in the two hours elapsing between the visit and the patient's death, something very analogous in the present instance had taken place; that this really was the case, cannot however be ascertained.

Not insisting longer on a doubtful supposition, we will observe, that we have collected two other observations of œdema of the glottis in phthisical patients, and from the frequency of the ulcerations of the epiglottis and larynx, it is singular our examples are not more numerous. Œdema, however, is not usually attendant on ulcerations in the intestines, stomach, &c. of phthisical patients, which seems to indicate that the cause of the ulceration is entirely local, not influencing the surrounding tissues.

The deposition of the grey matter, in the form of zones in the left lung, is a rare anatomical fact.

§ 2.—*Sudden deaths which are not accounted for by the post-mortem appearances.*

Observation XLVIII.

454. A sempstress, aged 23, of pretty strong constitution, and usually enjoying good health, not liable to cold, and having never been seriously ill, entered the hospital of La Charité, June 23, 1823. She had coughed uninterruptedly the last five months; and during the two first had not expectorated; dyspnœa had come on at the same time; there had been no hæmoptysis, pains in chest, or rigors, though from the first she had been very sensible to cold; and for the last two months had had night perspirations. For the same period her appetite had been much diminished, and every thing but soup caused uneasiness in the epigastrium; there had been some diarrhœa, and rapid emaciation. 24th.—Expression rather lively; inconsiderable debility; cough frequent at night, sputa greenish, opaque, ragged, immersed in saliva and clear mucus; some dyspnœa, with dull sound; cavernous ronchus, and tracheal respiration under the left clavicle; evident pectoriloquy in the corresponding point posteriorly. Pulse rather quick; night perspirations; tongue villous, whitish, bitter taste in mouth; very little appetite; abdomen yielding without pain; three liquid stools, with tenesmus.

July 3.—Pectoriloquy on either side between the shoulders; complexion florid; expression animated; pulse accelerated, small, and feeble; perspirations and digestive functions as before. 5th.—The patient walked in the garden, and was in excellent spirits. The next day at 4, p. m., after returning to her bed from the night-stool, she died suddenly, to the great surprise of her companions, with whom she had just been conversing.

Sectio Thirty-seven Hours after Death.

Exterior.—Considerable emaciation, with numerous vibices over the whole surface.

Head.—Very slight sub-arachnoidien infiltration; brain rather spotted with blood; three small spoonsful of clear serum in the lateral ventricles, and an equal quantity in the lower occipital fossæ.

Neck.—Larynx natural; lower part of the trachea of a bright red; numerous tuberculated cervical glands on the left side.

Chest.—Cellular adhesions over the summit of the lungs; some excavations in the same regions, rather larger on the left than on the right side, lined by a thick and firm false membrane, surrounded by grey semi-transparent matter interspersed with yellowish tubercles, forming an indurated portion in the summit of either lung, about two inches and a half in height. There were elsewhere numerous grey semi-transparent granulations. The bronchi were dilated without being thickened in the upper half of left lung; the lymphatic glands round their principal divisions tuberculated. Heart rather soft, without coagula; aorta everywhere red.

Abdomen.—Stomach of moderate volume, free from bile; mucous membrane of a livid colour over a considerable part of the left extremity, where it was also a little softened; elsewhere it was healthy. Mucous membrane of small intestine red, but of normal consistence and thickness; near the cœcum there were some crude tuberculous granulations. In the large intestine the lining membrane was slightly softened and thickened, with some ulcerations in the transverse portion. Liver red and engorged in the right lobe; bile viscous; the other viscera healthy.

455. The affection of the lungs was undoubtedly considerable; but they were still in the greater part of their extent capable of respiration, which function was not sensibly affected before death. They cannot then explain the cause of death. Can we compare the viscera to the muscles of locomotion, and think that in certain instances they suddenly become incapable of continuing their functions from a sense of fatigue?

456. The morbid alterations of the other viscera were too inconsiderable to arrest our attention. The aorta was red, but we are as yet ignorant of the real value of this sign.

OBSERVATION XLIX.

A woman, aged 60, entered the hospital of La Charité, 14th July, 1823, of strong constitution, usually enjoying excellent health, seldom subject to cold, and now ill the last seven months. During the first six weeks she experienced general uneasiness, with sense of weakness, and considerable diminution of appetite; after this she had cough with expectoration; during the three last months dyspnœa, pain in the right side of chest, and universal flushings which much incommoded her; these symptoms continued with some slight improvement in the appetite; there had been no hæmoptysis, diarrhœa, colic, or rigors. 15th.—Face pale, thin, considerable general weakness, sleep tranquil; sense of oppression referred to the epigastric region, little cough; sputa rugged, greenish, opaque; sound dull, with cavernous respiration and pectoriloquy under the right clavicle, and posteriorly in the corresponding point; doubtful pectoriloquy on the left side; elsewhere the respiratory murmur was loud, and accompanied with a sonorous ronchus; occasional pain in right side; pulse rapid, tongue clean and moist, rather red, little appetite, no pain in any part of abdomen, except we employed strong pressure, bowels regular; some ardor urinæ.—(Decoction of Iceland moss; mucilaginous mixture; a cup of the common wine.) On the following days some increase of appetite; no rigors or diarrhœa; the patient spent much of her time in the garden. 25th.—She did not appear worse than usual: she walked out during the day. In the evening her face became rather livid, but she slept tranquilly; at midnight she awoke, complained of suffocation, and at 1, a. m., was found dead. For the two last days she had complained of nausea and disgust for food.

Sectio Thirty Hours after Death.

Exterior.—Slight œdema of the whole of right lower extremity; some vibices in the same region; crural veins presented no obstruction.

Head.—Dura mater was ossified for about a square inch in surface, near the posterior portion of the falx; considerable infiltration of the sub-arachnoidien tissue; the choroid plexus was converted into vesicles containing a serous fluid, of which none existed in the cavity of the ventricles; cerebral substance slightly injected.

Neck.—Larynx, trachea, and epiglottis natural.

Thorax.—The upper half of right lung was adherent to the costal pleura; a large excavation communicating with several smaller ones occupied the summit; they were all surrounded by the grey semi-transparent substance which was interspersed with numerous tubercles; no part of this portion of the lung was healthy. The remainder offered numerous grey yellowish granulations, and was slightly engorged. On the left side there were some inconsiderable adhesions, with excavations in the apex of lung; the base was also slightly engorged. Heart small and healthy; aorta large, with numerous yellow patches on its surface and also embedded in its parietes.

Abdomen.—A great number of miliary semi-transparent granulations, developed in a thin cellular false membrane, covering the small intestine and mesentery. Stomach rather contracted; lining membrane red and softened over half the great cul de sac; greyish coloured and healthy elsewhere. Some middle-sized ulcerations in the lower five feet of small intestine, presenting some tuberculous granulations on their surface, with here and there denudation of the muscular coat; everywhere else the mucous membrane was normal. That of large intestine was softened in its ascending portion, healthy in the rest of its extent, except immediately above the anus, where there were three small ulcerations. Mesenteric glands natural; liver small, red, and easily broken down; twelve small calculi with pointed surfaces, and some very dark bile in the gall bladder. Spleen much softened, of usual volume; kidnies red; mucous membrane of bladder injected. A small fibrous body of a pale pink colour embedded in the uterus.

457. The cause of sudden death is not more apparent in this than in the preceding instance, and the same reflections are applicable to both. The morbid alterations were in fact, much less extensive than in many cases when the approach of death was slow and gradual. The engorged state of the different membranes was probably the effect and not the cause of death; perhaps it is analogous to the cutaneous vibices.

458. We have in a former part of the work (*Obs.* 7), related a case when death was equally sudden, and when all the viscera were extensively modified. In this case we are surprised that life should have been so prolonged, and that death should have taken place without its usual prodromes.

In a fourth example, similar to the preceding, and relating to a woman, aged 36, the progress of the disease was rapid, and death occurred at a moment, when the greater portion of the lungs was permeable to the air, the alterations in the stomach and small intestine inconsiderable, the brain healthy, and the emaciation not more advanced than in the cases we have just related. It is remarkable that in none of these patients was the emaciation very considerable.

We must also point out two peculiarities, common to nearly all the observations in question, and not present in cases of phthisis when the approach of death has been gradual, viz. the vibices and the moderate effusion of fluid into the lateral ventricles. These two appearances are also present in other instances of sudden death, when it occurs during convalescence, or under other circumstances, without any important alteration of the viscera.—(403.)

459. We shall terminate our remarks on cases of sudden death, by relating two observations, where there was a remarkable softening of the whole cerebral substance.

OBSERVATION L.

A tripe merchant, aged 54, of lymphatic and sanguineous temperament, subject to shortness of breath from his infancy, and to cough and expectoration the last two years, was admitted into La Charité, 9th April, 1823. From the commencement of the latter period, he had experienced pains between the shoulders, also in the epigastrium and under the false ribs; to these jaundice was associated for eight or nine months of the first year; it had not since reappeared, and he had only experienced occasional epigastric pains; his appetite had diminished. He also stated that anterior to the cough and expectoration, he had been liable for thirty years to apoplectic seizures, characterised by sudden loss of strength in the limbs, flushings of the face, and vertigo, all of which rapidly disappeared. He had never lost his consciousness, and these attacks had gradually become more frequent, returning every two or three weeks, and followed during the six months preceding the cough, by weakness and numbness in one or other sides of the body, during half an hour or an hour, after which they entirely disappeared. 10th.—

Face pale and meagre; no headache; no pains in the limbs; speaks rather hurriedly, breathing accelerated, cough rare, sputa flat, green and opaque; on the left side anteriorly, percussion was very obscure; there was a dry ronchus with coarse crepitation, but no pectoriloquy; on the right side, percussion and auscultation seemed natural. Pulse small and weak, 84; rigors for the last three weeks, returning regularly at 10, a. m., followed by heat and perspiration. Tongue moist, not red; mouth rather clammy, scarcely any appetite, no thirst, abdomen not painful; has not had any diarrhœa.—(Rice water; blister to the left side of chest; three rice creams; two soups.)

In the following days, no evident change in either the state of circulation or respiration; some heat in the evenings, without previous rigors, or consecutive perspirations; slight diarrhœa. 19th.—The patient experienced an uneasiness for which he could not account; the following night there was slight delirium. 20th.—During the visit, considerable stupor, very confused consciousness, pupils contracted, utterance embarrassed, movements on either side unaffected, tongue moist, not deviated, pulse 130, respiration very slow. These symptoms persisted until 10, p. m., when he expired.

Sectio Thirty-four Hours after Death.

Exterior.—Nothing remarkable.

Head.—Several lacerations of dura mater giving passage to granulations springing from its laminæ. Slight infiltration of sub-arachnoidien tissue; brain pale, moist, and not more consistent than in a fœtus of six or eight months; there was a spoonful and a half of clear fluid in each lateral ventricle, and a much smaller quantity in the lower occipital fossæ. The tuber annulare and cerebellum were nearly as soft as the cerebrum.

Neck.—Larynx natural; mucous membrane of trachea of a vivid red over its fleshy portion.

Chest.—Dense adhesions over the summit of right lung, by means of a semi-cartilaginous false membrane from one to two lines thick. A vast excavation in the same region surrounded by tubercles and the grey semi-transparent substance, which almost entirely occupied the remainder of upper lobe. In the intervals between the larger masses of grey matter there was a homogeneous firm substance, very much resembling the jelly from veal, and presenting in detached points a granulated appearance. The lower lobe contained a few tubercles and was slightly engorged. There was some adhesions over the summit of left lung, the upper lobe of which, with the exception of excavations, was similarly affected with the right. In this last side the bronchi of the upper lobe were very red and thickened; they were thin and of a pink colour inferiorly.

Abdomen.—When removing the anterior parietes of the abdomen, we lacerated the gall bladder, which was closely adhering to them. It extended an inch and a half below the false ribs, contained 200 calculi, varying in size from a pea to that of millet-seed; its lining membrane was destroyed in the point corresponding to the adhesion, as also near the neck. These ulcerations seemed as if artificially produced. The mucous membrane was elsewhere firm, about half a line thick, and seemed formed by innumerable intersecting fibres, giving it in miniature the appearance of the urinary bladder; the sub-mucous layer forming the bottom of the ulcerations, was thickened and brittle. The cystic canal was very narrow near its junction with the hepatic and contained several calculi. The ductus choledicus was healthy. Liver, spleen, pancreas, and kidnies were natural. Some tuberculous granulations in the renal capsules. Mucous membrane of stomach of a pinkish grey tint, nearly everywhere mamillated, being thickened in the portions where this was not the case; near the pylorus it was destroyed over a very small surface. Some of the elliptical patches of small intestine were ulcerated. Lining membrane of colon thick and softened, with numerous small ulcerations becoming rarer from above downwards. Mesenteric glands healthy.

460. Here, as in the two preceding observations, the cause of sudden death remains unexplained. We shall not attempt to attribute it to the softened condition of the brain, for we are quite ignorant of what degree of firmness is necessary for the support of life; we may however observe, that we cannot pay too much attention to all alterations in the consistence of our organs. The researches of M. M. Rostan and Lallemand have thrown much light on the *partial* softenings of the brain; it remains to

be shown when a *general* softening of this organ, always easily recognized by those accustomed to pathological researches, may be regarded as a morbid condition; it is for the purpose of assisting in the solution of this question that we detail the following observation which is also an example of latent tubercles.

461. The condition of the brain was not the only remarkable circumstance in the fact before us; the extensive mamillated state of the gastric mucous membrane, its partial thickening, and loss of substance near the pylorus, are not without interest if we compare them with the symptoms present during the two years preceding death; that is, pains in the epigastrium, and diminished appetite. These are indeed the symptoms of chronic gastritis, and may in common with the mamillated state have resulted from it, though the presence of other complications render our conclusions less positive. Let us also notice the relation existing between the biliary calculi, the thickened and ulcerated state of gall bladder, the pains under the false ribs, and lastly, the jaundice, which recurred several times in the course of the same year.

Observation LI.

462. A cook, aged 48, of middle stature, moderate *enbonpoint*, great sensibility, had always enjoyed good health previous to her present illness. The catamenia which first appeared in her 18th year, were suppressed at the age of 30; their usual period was every six weeks, they were always scanty, and only of some hours duration. Three years before her admission into the hospital she suffered much mental anxiety from being unjustly deprived of her savings, and was suddenly seized with loss of sensation and movement; her intellectual faculties were not affected. Wishing to die, she refused all treatment, and continued in this condition about two months. She was then attacked by pains in the limbs, and soon afterwards some convulsive movement in the hands and feet. The progress of disease was very gradual, and eight months elapsed before the patient could resume her occupations. She continued in good health during the succeeding six months, when she was attacked without evident cause, by erysipelas in the left leg; an empiric made her anxious about the consequences of this affection, and

immediately the mucus secretion of the nasal fossæ was suppressed, and a leucorrhœa and spitting of blood, to which she had been subject since her infancy, recurred both morning and evening; the latter being attributed by the patient to the unhealthy state of her gums. At the same time an epistaxis, to which she was frequently liable, ceased. She experienced a sense of weight in the frontal sinuses, and lost her smell and taste; the appetite was not affected. The suppressed evacuations did not return, and the patient never recovered her usual good spirits. Three weeks before her admission into the hospital, she was seized with violent headache, accompanied with heat and thirst, which confined her to her bed five days. There were no other symptoms; she was not liable to cold, and did not cough.

Feb. 16, 1822.—The day after her admission into La Charité, the intellectual faculties were unaffected; there was slight headache; complete loss of both taste and smell; the nose was enlarged at its base and laterally. This was attributed to the habit of taking snuff and extracting the dried mucus with her fingers; little general debility; tongue normal; thirst rather urgent; little appetite; stools natural; pulse calm; heat moderate; respiration easy; no evident emaciation.—(℞ Decoction of dulcamara; occasional sulphur baths; blister to the arm; one-eighth of house allowance.)—The headache disappeared, but returned on the 20th of February after exposure to a cold wind. 22d.—It had much diminished, the appetite was improved, and thirst gone. 23d.—Nothing remarkable. 24th.—At 10, p. m., she complained of sense of heat, general uneasiness and a feeling of swelling and fulness in the face. Two hours afterwards she expired.

Sectio Thirty-two Hours after Death.

Exterior.—Some scattered vibices; great rigidity of limbs.

Head.—Brain extremely pale, very soft throughout its whole extent, like that of a new-born child; the olfactory nerves were natural; mucous membrane of nasal fossæ healthy; that of the frontal and maxillary sinuses, was a line and a half thick, infiltrated, semi-transparent, firm, and in colour like the pulp of a baked apple; there was no dried mucus in these parts.

Neck.—Glottis, epiglottis, and larynx, natural.

Thorax.—Some adhesions over the summit of left lung; five crude tubercles, about the size of a small walnut in the summit, surrounded by the grey semi-transparent substance, and enclosing four nuclei, of a bony earthy structure; the posterior portion of both lungs was slightly engorged; bronchi pale and thin.

Abdomen.—Convex surface of the liver very uneven, intersected by variously directed depressions, which gave it the aspect of the cerebral convolutions; the structure of the organ was healthy; the right lobe rather congested; gastric mucous membrane of a bluish grey colour, with here and there a pink tinge; that of the small intestine natural; the kidnies were much congested; spleen firm, voluminous, pale; the other viscera healthy.

463. The state of the brain in this observation is very analogous with the preceding, as were also the symptoms during life. Both patients were of nearly the same age (48 and 54), and at a period of life when the brain is naturally very consistent, while in these instances it was not firmer than that of an infant at term. This great deviation from the normal state, appears to us an evident morbid condition, and this opinion is confirmed by the symptoms during life, which were confined to the brain. On the one hand we had vertigo, flushings of the face, sudden weakness of the limbs, of short duration, and frequently recurring during a period of thirty years; these attacks became more frequent the last six months, and were associated with numbness of the extremities, which lasted half an hour, and then entirely ceased; the intellectual faculties were never affected. In the other case, there was complete paralysis of movement and sensation three years before death; this continued unabated two months, gradually disappearing at the end of eight months, and as in the preceding case the intellectual faculties remained undisturbed. In both, the cerebral symptoms had ceased two years before death. If the symptoms are not exactly similar, they are at least very analogous; and the greatest softening of the brain coincided with the

case in which the symptoms had been most intense; so that we must necessarily suppose some dependence between the state of the brain and the symptoms observed. If however this should not be fully admitted, the facts are sufficient to merit further investigation on the part of observers.

464. We shall not enlarge on the sudden suppression of the nasal and buccal secretions, &c. The tubercles in the left lung were latent, had not excited cough; the patient was not liable to bronchitis; the bronchi were *healthy*, and consequently nothing can justify the supposition that they resulted from chronic inflammation; as was the case in the majority of the instances of sudden death, there were vibices in the extremities.

CHAPTER XI.

CAUSES OF PHTHISIS.

465. A knowledge of the causes of disease, is without doubt of the highest importance in medicine; for, if not always available for treatment, it often enables us to adopt prophylactic measures; and this consideration alone explains the interest attending the study of the causes of phthisis, and the great attention their investigation has received. Unfortunately, as is the case in many other circumstances, assertion is much easier than proof, and the detection of error than the discovery of truth, so that little really satisfactory has as yet been effected. Our own observations have not demonstrated the cause of tubercles in the lungs, but they have forced upon us conclusions opposed to the doctrine of irritation, and on this account we think it useful to expose the results of our investigations.

466. We shall successively examine the influence of sex, pneumonia, pleurisy, bronchitis, &c. on the production of phthisis.

Influence of Sex.

467. We have already said that the 123 observations of phthisis were collected during rather more than three years, in

wards equally divided between men and women. Sixty-six of these cases belonged to the latter, fifty-seven to the men, which seems to indicate the greater liability of women to phthisis. This conjecture is strengthened by another fact: in an equal number of patients of either sex, who have died from other chronic affections, we have found tubercles in the lungs, twenty-five times in women, and only fifteen times in men; that is, by joining these two results, the proportion of phthisical cases in men and women, was as seventy to ninety-two; a difference very considerable in favour of the weaker sex.

[M. Benoiston de Chateauneuf, in a very interesting memoir to which we have more particularly referred in the notes to this chapter, says, that out of 1554 deaths from phthisis, 745 were men, 809 women. In the Statistical Tables of Paris, published under the auspices of M. Chabrol (Vide *Journ. des Progrès des Sciences et des Inst. Médicales*, t. ii. 1830), we find that out of 9542 cases of phthisis, 5582 were women, 3960 men. M. Lepelletier found that the number of phthisical females admitted into the hospitals of Paris, were in relation to the males as five to three. Dr. Papavoine, in his *Inaugural Essay on Tubercles*, mentions that out of 532 girls from the age of 2 years to 15, examined at the hospital des Enfans Malades, 308, or two-thirds, were tuberculous; while out of 388 boys, 210, or about a similar proportion, presented the same morbid peculiarity. Dr. Darwall, in his summary of cases at the Birmingham dispensary (Vide *Midland Med. and Surg. Reporter*, No. 3, Feb. 1829), gives 86 cases of tubercular consumption, 48 of which were women, 38 men. To this evidence we might add the *opinions* of a variety of authors, both ancient and modern, in favour of the greater liability of women to this disease, but we shall confine ourselves to numerical results, and we think the striking accordance of the above sufficient to establish the fact in question. It may be objected that they were not all cases of phthisis; probably *not*, but since the majority of fatal pulmonary cases are phthisical, and as the relative frequency of pleurisy and pneumonia in either sex is the inverse of that of phthisis, this objection tends to strengthen rather than invalidate the results. The proportions given by Dr. Papavoine respecting children, in which *sex* seems to have no influence, are rather confirmative than contradictory, for at this period of life the peculiarities of either sex are not developed, and their habits, among children of the lower classes at least, do not essentially vary. If dress, professions, and sedentary occupations are the causes of phthisis in the adult, we might have expected *à priori*, that the relative frequency of the disease would only be apparent when these causes became active. It must not be forgotten that these results are principally derived from the Statistical Tables of Paris, and are not in unison with those obtained in New York, Sweden, &c. (Vide *Cyclop. Pract. Med.*, part xxii. p. 309.) They cannot therefore be regarded as more than a highly probable approximation to the truth, founded upon the greater comparative accuracy of the details, and their being collected at a time when the knowledge of the diagnosis of phthisis and post-mortem examinations gave a previously unknown value to all researches upon this subject. To arrive however at positive conclusions, it would be necessary, as Dr. Clarke says, to know the relative number of the sexes alive in each place, their relative deaths from other diseases, and their relative admissions into the hospitals referred to. The habits and occupations of the sexes, the district being manufacturing or otherwise, would no doubt produce many local modifications in the results.]—Translator.

Influence of Pneumonia and Pleurisy.

467. In eighty cases of phthisis, where we have carefully ascertained the diseases existing anteriorly to the tubercular affection, three had pneumonia four years before death, and since then the cough and expectoration had continued; four had the same disease, three, six, and fifteen years previous to the appearance of the first symptoms of phthisis, without having incurred greater liability to cold during the same period, or having been subject to dyspnœa. All were of feeble constitution and of the lymphatic temperament; that is, presenting those characters which physicians have classed among the principal predisposing causes of phthisis. All that we can deduce from such contradictory results is, that pneumonia exerts no influence in the development of phthisis.

468. It will no doubt be said, that this conclusion is falsified by a great number of facts, particularly by the observa-

tions of M. Broussais.* Without disputing the accuracy of these facts, we cannot help thinking that their importance has been overrated. Acute pneumonia and pleurisy are very common in the army: M. Broussais who has examined a number of cases fatal from one or other of these diseases, has found, in many of them, tubercles in the lungs, and has hence considered pleurisy and pneumonia as their cause. To render this conclusion rigorous, tables of mortality were necessary for the purpose of ascertaining whether the lungs under these circumstances were more frequently tuberculated than in individuals *of the same age*, dying in the civil hospitals, in a time of peace. Without this confirmative evidence, the proposition of M. Broussais is wholly conjectural, and the fact may be the expression of a simple coincidence between two diseases in other respects so different; this is rendered still more probable from the consideration, that the period of life when tubercles are most frequent (from 20 to 30), was precisely that in which M. Broussais so often observed pneumonia and pleurisy. These observations are not only incapable of proving pneumonia to be a cause of tubercles, but the history of the disease itself rather favours a contrary supposition. It is in fact (Bayle) most usually developed from the base to the summit of the lungs, while the reverse is the case for tubercles; pneumonia seldom attacks both sides of the chest, while phthisis almost invariably occupies both lungs. Phthisis is more frequent in women than men, the inverse holds good for pneumonia. Out of seventy-five cases attacked by the latter disease, whose histories we have collected during the last three years, twenty-five only were women: eighteen were fatal,—fifteen men and three women.

469. The same reflections are equally applicable to pleurisy. We have found it more frequently in men than women; it was generally confined to one side of the chest, and if we have often discovered tuberculous granulations in the lungs in fatal cases of chronic pleurisy, they were equally numerous on the side of chest where the pleurisy did not exist, as on the other.

470. These facts are evidently much opposed to the doctrine of irritation. We are however far from asserting that pneumonia can exercise no influence in tubercular development, for we do not pretend to prescribe bounds to what is *possible:* but

this influence appears as yet but mere conjecture, and we think it can only be demonstrated by means of the tables of mortality already alluded to, by which the diseases of individuals dead in various circumstances may be contrasted with each other.

However, supposing for a moment that such an influence really does exist, it cannot be very considerable, since among the tolerably numerous facts we have carefully collected, we have found no evidence in its favour.

[M. Lombard, in a valuable memoir on the respective prevalence of pneumonia in either side of chest (Vide *Arch. Gen. de Med.*, Jan. 1831), says, that in 968 cases collected by Andral, Chomel, and himself, 195 had pneumonia in *both lungs*, 260 in the *left lung*, 413 in the *right*. This is strong additional evidence in favour of M. Louis' results; it is to be regretted that in the 195 cases of double pneumonia, the presence or absence of tubercular complication is not mentioned. The same author has investigated the influence of *age* on pneumonia. His researches are founded on 206 children from the age of 1 day to 18 months; on 118 from 18 months to 14 years, and on 1284 persons of ages varying from 15 to 83. He infers that pneumonia forms 3-17ths of all the organic derangements found in infants who have died during the first eight days; 2-9ths during the second week; 3-10ths during the third week; 2-9ths between the sixth week and end of the eighth; 1-10th only between the second and sixth month. In the second year it amounts to 1-3d; from the second year to the sixth, 1-4th to 1-5th; from the eighth to the eleventh, 1-4th to 1-6th; from the fourteenth to the nineteenth, only 1-37th; from the nineteenth to the twenty-seventh, 1-9th; from the twenty-seventh to the forty-seventh, 1-15th; from the forty-seventh to the eighty-fifth, 1-14th; above this, 1-8th. The reader is requested to compare these results with similar researches in phthisis, and he will find them corroborate the author's opinion, as to the independence of pneumonia and tubercles; indeed we think that an impartial view of all the preceding facts renders this conclusion inevitable. It may not be uninteresting to oppose the testimony of facts to the propositions (163—171) of M. Broussais. Bayle, Laennec, Andral, Lombard, all agree in regarding pneumonia as a very secondary cause of phthisis.]—Translator.

Influence of Bronchitis.

471. This influence appears to us equally foundationless with the preceding. Out of eighty individuals who distinctly recollected the symptoms they had experienced anteriorly to the origin of phthisis, only twenty-three were subject to catarrh; fifty-two, or about two-thirds being very rarely affected. What conclusion are we to draw from this?—that phthisis is equally frequent in individuals liable to bronchitis as in those where no such liability exists; it cannot therefore be considered as a consequence of the latter, no evident relation existing between them.

Another class of facts will lead us to the same conclusion. Women, who are more frequently attacked by phthisis than men, are less subject to bronchitis, or at least to that kind of bronchitis which is sufficiently intense to require treatment. Out of 149 cases, collected during the last three years, 52 only, or about one-third were women.

472. Whether therefore we investigated the connection which exists between inflammation of the substance of the lung or of the bronchial membrane, and phthisis, we arrive at the same conclusion, viz. *the sex most exposed to phthisis, is least frequently attacked by pneumonia or bronchitis; and this in the proportion of one to three.*

The opinion then, that pulmonary tubercles are the result of chronic inflammation of the bronchial mucous membrane pulmonary parenchyma or pleuræ, on whatever theory it may be supported, is quite unsatisfactory; the preceding results *cannot* be set aside, except by an equally numerous series of observations, which prove that the proportion we have established resulted from a purely accidental combination of facts.

473. But if, contrary to all probability, our observations are not sufficiently numerous to establish the relative proportion of phthisis in men and women, our conclusions would not on that account be invalidated, since the relative frequency of phthisis, compared with that of pneumonia or bronchitis in either sex, would still remain unaffected.

474. If however, by a series of well observed facts, it should appear that these two affections really exercise an influence in the production of phthisis, it would still be undecided whether they were a *necessary* cause, and that phthisis depended upon their presence; our observations of acute phthisis, seem distinctly to prove the contrary. The first is relative to a young woman who was not subject to cold (*Obs.* 33), had never had pneumonia, was in perfect health up to the moment when she was attacked with fever, which was soon followed by cough and expectoration; she died on the thirty-fifth day of her illness and twenty-fifth from the commencement of the cough; after death we found a large mass of tuberculous matter at the base of the lungs, softened and partially excavated, with grey granulations, &c. &c. These morbid productions were certainly not the result of bronchial inflammation; to support the contrary idea, we must prove that bronchitis of twenty-four hours duration could have produced tuberculous deposit, &c. But we respect the reader too much to suppose him supporting such an opinion, or other equally improbable suppositions, and shall consider the fact of phthisis being developed independently of all inflammation, as satisfactorily as possible demonstrated in the instance before us.

475. The other observations of acute phthisis are equally decisive; we could mention particularly the 34th; that of a man, usually enjoying good health, suddenly seized, without any evident cause, with fever, then cough, and who died on the thirtieth day from the commencement of the symptoms. The lungs were filled by an immense number of grey semi-transparent granulations, the bronchial mucous membrane being *perfectly healthy* with the exception of a slight livid tint no doubt produced by simple congestion towards the close of life, and which is frequently observed in cases of sudden death. We would also recall the 33d Observation, relative to a young man, aged 19, in perfect health, until attacked, without any assignable cause, by fever and cough, and in whom there was sufficient tuberculous matter developed in the lungs on the twentieth day, to render the percussion of chest dull. We might also cite Observation 36 and 37, and especially the 10th, in which there was dulness of sound under the right clavicle on the seventeenth day, although, in this instance, the fatal termination

was not equally rapid. Out of 123 cases therefore, six or one-twentieth of the whole, were direct illustrations of the production of phthisis, independently of all inflammatory action either in the substance of the lung or the bronchial mucous membrane.

476. The same fact may also be deduced from our examples of "*latent* phthisis." Three among them (*Obs.* 28, 29, 30), were instances of simple phthisis; the cough and expectoration had been preceded, during six or twelve months, by a continued fever with slight remissions; and from the absence of all complications, this fever could only be the result of the presence of tubercles, which were here not produced by either pneumonia or bronchitis. Observation 4 is also in support of this assertion, for here the cough and expectoration came on after four months of violent diarrhœa, and only preceded death six weeks. The size and structure of the excavations were evident proofs of the presence of the tuberculous matter anterior to the cough, which was here an effect, not a cause.

477. Not only then is the influence of pneumonia, pleurisy, and bronchitis in the development of phthisis not demonstrated, but our observations induce us to suppose its existence imaginary, or at least restricted within very narrow limits; from what has preceded, we think to have proved, that in one-twelfth part of our cases, pulmonary tubercles were developed independently of all inflammation either of the substance of the lung, pleuræ, or bronchi.

We must however acknowledge, that the slow progress of phthisis in the greater number of instances, and the striking similarity of the symptoms with those of simple bronchitis in the first stage, and the inflammatory state of the bronchi so frequently present, offer an easy explanation of why inflammation, and more especially that of the bronchial membrane, should have been regarded as a cause of tubercles; we think however that in the majority of cases this opinion is no longer tenable.

478. There is also a circumstance not less certain than those on which we have hitherto insisted, and which might indeed be substituted in their stead; viz. (36), that the bronchi are in general healthy in the vicinity of either unsoftened tubercles, or masses of grey semi-transparent matter (*Obs.* 30, &c.);

that the redness and thickening of those which communicate with tuberculous excavations, seem the result of the constant passage of the contents of the latter, and that in cases fatal from some other affection, but with crude tubercles or grey granulations in the lungs (*Obs.* 50), the bronchi are almost constantly healthy, both as to colour and thickness. Facts of this description are not uncommon; we have lately encountered several, and it is only necessary to have met a single example, to feel convinced that in many instances, inflammation and tubercles in the lungs are independent of each other.

[This section and the author's reasonings are particularly worthy of serious attention, and highly calculated to shake our faith in some of apparently the best substantiated medical facts. Perhaps in the history of phthisis no one opinion was more universally admitted, than that bronchitis was amongst the most frequent and active causes of pulmonary tubercles, this cannot however be any longer supported, and its accuracy is rendered still more problematical by what has been advanced in the notes on "Diagnosis," as to the situation of simple bronchitis at the *base of the lungs. Chronic* inflammation of the bronchial mucous membrane does not appear more influential. In eleven cases of dilated bronchi, where the general symptoms of phthisis had not been present, and the duration of the affection was from two to six years, the mucous membrane was intensely red, thickened and granulated, while tubercles existed only in *three* and were neither numerous or softened. It is not intended to deny that bronchitis may and does occasionally hasten the development of tubercles (acting like all other causes which tend to weaken the sum total of health), but that it has no *direct specific influence.* Indeed we may perhaps conclude, that *any* source of intense and prolonged febrile movement may be indirectly the cause of tubercles. Out of forty-six cases of continued fever (affection typhoide) observed by M. Louis, in *four,* there were some tubercles or grey semi-transparent granulations in the summit of the lungs, and in these instances death took place from the twenty-fifth to the forty-sixth day of the disease. No tubercles were found in those who died at an earlier period.—(Vide *An. d'Hyg. Pub.* No. 11, p. 55.)

Simple increased circulation, when not inflammatory, cannot be regarded as a cause of tubercles. M. Louis has collected forty-four fatal cases of diseases of the heart; nineteen were hypertrophy of the right auricle, twenty-nine hypertrophy of the right ventricle. In six of the latter the pulmonary artery was enlarged and thickened, thus proving the increased impetus of the circulation:—in all there were only two examples of pulmonary tubercles, while in fifty cases of cancer, this complication existed in eleven instances. To conclude this irresistible mass of evidence, in forty cases of emphysema of the lungs accompanied with chronic bronchitis of several years duration, only *four* presented tubercles in the lungs, and in *one* alone were they numerous.]—(Vide *Examen*. p. 78.)—Translator.

Influence of Dress.

479. The influence of dress, and especially of stays, on the production of phthisis, is also perhaps a mere assertion.

Several of the women we examined were liable to shortness of breath, before they became consumptive; but this was equally the case with the men; so that we cannot admit a connexion between this peculiarity in dress and phthisis, not even could we prove that stays had been worn from a very early period of life. Besides, the majority of our female patients had been brought up in the country, were habituated to rustic occupations, and had only been accustomed to stays after their residence in Paris, when their growth was established, or in other words, when stays could not have exerted any evident influence on the dimensions of the chest. Supposing however, this influence to have existed, its demonstration would be exceedingly difficult, for it would be necessary to compare a great number of women together, some of whom had worn stays from a very early period, the others only after puberty, to be enabled to decide if phthisis was more frequent in one class than in the other. The influence of stays in phthisis, and in general of those causes which interfere with the development of the frame, is still more problematical, from the fact, that tubercles are nearly equally frequent in individuals of a strong as in those of a feeble constitution.*

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* "The deposition of the peculiar matter of tubercle in any of the tissues or organs of the body, is only the result of previous changes in the

[We cannot coincide with the author's reasoning in this paragraph. The fact of stays only being worn after the chest was fully developed, does not in the least weaken the evidence of their being a cause of phthisis, for the respiratory and digestive functions may be equally impeded by any obstructions to the movements of the thorax, as by those which influence its development. The change of habits also in the individuals mentioned, from a country life to a residence in Paris, renders all calculations on the influence of dress, valueless. From the evidence brought forward at the end of this chapter, relative to certain professions, it may be fairly argued, in the absence of any positive evidence on the influence of particular articles of dress, which, as the author says, would be very difficult to obtain, that whatever interferes with the free action of the lungs, either by any habitual posture of the body, or mechanical obstruction, may be considered as powerfully predisposing to pulmonary tubercles. In delicate children particularly, the effect of any mode of dress by which muscular action is impeded cannot but be most prejudicial, and if not terminating in phthisis, is undoubtedly the most fruitful source of spinal deformity.]—Translator.

Hereditary Influence. *

480. One-tenth of our patients, were children of parents, one or both of whom appeared, as far as we could judge, to have died

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general system, cognizable, as we have endeavoured to show by the physical condition of the patient, and by a disordered state of various functions; a condition of body quite distinct from mere debility, and therefore inexplicable on the idea of a difference of force or tone of the system; and which, though very generally accompanied with a feeble organization, is not inconsistent with too great development and inordinate action of particular parts, and even with considerable physical power of the system."—Article on Tubercular Phthisis—*Cycl. Pract. Med.* p. 325.

* There can be little doubt that as a general principle, children born from healthy parents, are more robust than those in opposite circumstances, and on this account are less predisposed to disease. The evidence hitherto adduced in favour of the hereditary nature of phthisis, amounts to little more than the announcement of this fact, and while we cannot help admitting, in the children of consumptive parents, a *pre-*

of phthisis; but as the disease could have been transmitted or spontaneously developed, and since we are ignorant of the cause of death in their brothers or sisters, it follows that we have not collected any fact in favour of the hereditary nature of phthisis. We do not wish to imply that this hereditary influence is doubtful, for too many examples seem to justify an opposite opinion; and probably also the proportion we have mentioned of individuals born from consumptive patients, is too small, from the difficulty which in hospitals attends the investigation; but we believe, that to determine the question satisfactorily, tables of mortality would be necessary, comparing an equal number of persons born of phthisical parents with those in an opposite condition.

Influence of Age.

481. Of this there is no doubt; the number of deaths from phthisis, is more considerable from 20 to 40, than from 40 to 60, although the absolute mortality is less in the first than in the second period. This fact has already been proved by Bayle, and our own observations are confirmative of his with some slight variations. According to us, phthisis is distributed in the different ages as follows:—

	Deaths.	
Age.	Author.	Bayle.
15 to 20	11	10
20 — 30	39	23
30 — 40	33	23
40 — 50	23	21
50 — 60	12	15
60 — 70	5	8

disposition, there is no reason to suppose that in the majority of instances, prophylactic treatment would not be attended with success. The fact of tubercles being found in the fœtus, only proves that phthisis is one of the many diseases which may be developed before birth, and we have no reason to believe, that it may not arise from any cachexia in the parent which interferes with the proper nutrition of the child, as well as from the tuberculous. In general terms, it may be stated, that children are hereditarily predisposed to phthisis in proportion as their general health is enfeebled, whatever may be the cause, and that attention to this fact is of more practical importance to the physician, than the knowledge of whether tuberculous disease did or did not exist on the part of the parents.—(Translator.)

[These results are confirmed by those of Dr. Darwall; in forty-eight female cases of phthisis, the numbers were as follows :—

Age.	Deaths.
15 to 20	9
20 — 30	16
30 — 40	16
40 — 50	6
55	1

In the Statistical Tables of Paris already referred to, founded on 9542 examples of phthisis, we find ages arranged according to the relative frequency of tubercles.

Age.	Age.
20 to 30	0 to 10
30 — 40	60 — 70
10 — 20	70 — 80
40 — 50	80 — 90
50 — 60	90 — 100

This table strengthens the preceding with regard to the adult age; for the earlier periods of life, the materials are less copious and from many circumstances less likely to be correct. Of this we may judge by comparing the recent researches of Drs. Lombard and Papavoine, made at the Hospital des Enfans Malades. The former has found tubercles in one-eighth of the children who die between their first and second year; in two-sevenths, between the second and third year; in four-sevenths, between the third and fourth; in three-fourths, between the fourth and fifth years. From this last period until puberty, tubercles are more frequent than anteriorly to the fourth year, but *less so* than between the age of four and five. These results are very similar to those of Dr. Papavoine; this pathologist has found that from the *fourth* to the fourteenth year, the number of tuberculous children is *greater* than those who are not so. That tubercles are most frequent between the fourth and seventh years; that they again become numerous from the twelfth to the thirteenth year; that between the fourteenth and fifteenth years, the same proportions exist as between the third and fourth. These data are founded on the post-mortems of 920 children (388 boys—532 girls), from the age of two years to fifteen. Out of these 538, or nearly three-fifths, presented tubercles.—(Vide *Journ. des Prog. des Sc. Medicales*, t. ii. 1830: *Et Révue Med.*, June, 1830.)—The above details all coincide in placing the maximum of tubercles in the adult, between the age of twenty and forty. The great frequency of tubercles in children as implied by the researches of Drs. Lombard, Papavoine, and others, is a fact of considerable interest and is not consonant with what has hitherto been the general opinion. This no doubt may be principally attributed to our pathology being now founded on post-mortem examinations, and not on mere symptomatology; also to the modifications which age produces in the symptoms of tubercles, to their different distribution in children, and their frequent manifestation by abdominal rather than thoracic symptoms. The question of the influence of age is an important one, and is still depending on future investigations for its complete elucidation. We refer the reader to the able summary of Dr. Clarke (Vide *Cyclop. of Pract. Med.* part xxii., p. 307), for more extended details on this interesting subject.

[The *causes* of phthisis have never received that attention which they really deserve, more especially since the result of their influence, is a morbid condition of the system, for the removal of which, medicine has hitherto been almost inert. Under these circumstances *prevention* is evidently a more important investigation than *cure*, and the active agents of tubercular disease merit our most serious and attentive research. There is one prevailing error which has attended the majority of investigations on the etiology of this and other diseases, which, in the appreciation of the succeeding remarks, must not be forgotten. Every possible influence has been occasionally associated with an affection so frequent in its occurrence, and the long list of causes often contains an indiscriminate enumeration of every agent capable of modifying the health, without any definition of its relative activity, or any attempt to distinguish between what essentially predisposes to disease and what simply hastens its development, after the predisposition has been formed. Without attention to this, the causes of disease can never be classified, for in proportion as the health is debilitated and constitutional peculiarities abound, do we multiply the number and activity of those influences which react upon the frame, and thus each individual adds a new cause to our list, until novelty is almost impossible and prophylactic treatment would require another world for its employment. In attempting therefore to investigate the causes of consumption, those influences are alone examined which appear capable, by a more or less prolonged application, of producing tubercular deposition in a *healthy* individual. In accordance with these views, we shall now make the reader acquainted with some extensive recent researches on this most important subject.

It will be necessary almost entirely to confine our remarks to the *conclusions* admitted by all or the majority of those on whose enquiries we can rely, for each author having adopted a different plan in the arrangement of his details, and arrived at different results with regard to many individual facts, it would require a volume rather than a note to enter at length into those considerations by which these differences might either be explained, or attributed to the peculiar and à priori views of the nature and causes of phthisis, which have occasionally influenced the writers. Our principal sources of information are three.

First. A memoir, by M. Benoiston de Chateauneuf, on the relations of consumption to trades and professions generally, published in the *Annales d'Hyg. Publ.* for July, 1831. It is founded upon the inspection of the registers of four of the principal hospitals of Paris, including a period of five or ten years, as the individuals belonging to particular professions were numerous or otherwise, determining the proportion which the deaths from phthisis in each trade bear to the total admissions of persons of that trade. The number of professions (principally among the operative classes), is forty-two, and the sum total of admissions, 43,000 (26,045 men and 16,955 women.) Out of these 1554 have died from thoracic affections, (745 men, 809 women), or about 1-35th for the former and 1-21st for the latter. The reader will at once perceive that this mode of deciding the question, can never be completely satisfactory, for the determination of the comparative mortality of phthisis in any particular profession, requires a knowledge of the number of deaths in that profession from *diseases in general.* We might, without this information, discover that phthisis was more or less frequent in certain circumstances, but the *peculiar* tendency to its production rather than other diseases, can only be resolved by the comparison to which we have alluded. This has been foreseen in the memoir of Dr. Lombard, of Geneva, published in the same periodical for January, 1834; though even here the results are far less positive than would be desirable, on account of the total number of persons engaged in each trade not having been mentioned. This talented and indefatigable pathologist founds his inductions on a still larger and in some respects a more valuable collection of facts. He divides them into five series. First, 1495 deaths from phthisis collected by himself in the different hospitals of Paris, and contrasted with a table of *general mortality* in the same professions, published by M. Villermé, but taken in another year. Secondly, 676 deaths from phthisis in the general hospital of Hainbourg, arranged and contrasted as above. Thirdly, 572 deaths in an hospital of Vienna. Fourthly, The memoir of M. Benoiston de Chateauneuf. Fifthly, 8829 deaths collected from the registers of Geneva, of which 1003 were from phthisis; giving an average of 114 deaths out of every 1000 deaths from diseases in general. This last division is the most valuable, since it presents materials for the comparison we have already referred to. Dr. L.'s researches are therefore founded on a total of 4300 deaths from phthisis, and 54,572 individuals, exercising 220 different occupations.

The third source to which we would particularly refer is the interesting volume of Mr. Thackrah, on *The Effects of Arts, Trades, and Professions, &c. on Health and Longevity*, 2d edit. Lond. 1832. This we believe is the only work of the kind published in England, and the reader will find in it much valuable information, and discover many proofs of the author's talent and research. The extent of enquiry which it embraces necessarily precludes those accurate numerical details, which are indispensable for arriving at rigorous conclusions. Phthisis has also, from the nature of the work, been only considered as one of many other diseases to which our manufacturing and other classes are liable, and the author's pathological views with regard to the nature and causes of this disease, have insensibly biassed his researches and modified his conclusions. He says, p. 98, "No agents excite tubercular development more than *irritation of the bronchial membrane*. Much, I conceive, depends on the size and *figure* of the particles which enter the air-tube.

The dust from the roads produces *no apparent mischief*, while the mason's chippings from the stone occasion serious and often fatal injury to the lungs." (As if no other and more important considerations did not influence this result.) "The dust from old iron, which is thrown off so copiously as to deposit a thick brown layer on the dress of the dealers of this article, *produces no inconvenience*, while the less apparent detachment of particles from the file, is decidedly baneful to the workers in iron. It is then the *form* rather than the material, the spiculæ, the angular, or pointed figure of the particles detached, which we conceive the chief cause of injury. The bronchial membrane is mechanically irritated or wounded; and from the daily repetition of this injury, the lungs at length become seriously diseased, and a vast majority die consumptive!"

With these impressions upon the mind, much misconception as to the *really* active causes of phthisis will continue to prevail, and many useless preventative measures be adopted. No really conclusive researches can be made under the influence of such preconceived and we believe erroneous opinions. There are other materials, of which we shall avail ourselves in the course of these remarks; they will be mentioned under the particular divisions to which they are applicable. We shall now examine the evidence adduced on some of the most important influences resulting from different occupations.

Influence of Dust in the production of Phthisis.

No opinion has been more prevalent, than that those who are exposed to the inhalation of the dust of vegetable, mineral, or animal substances, are peculiarly liable to phthisis, and on the supposition that consumption was essentially a disease of the lungs, and in the great majority of instances the result of bronchial inflammation, no conclusion was more natural or more probable. The reader cannot, we think, have impartially examined the evidence on the influence of bronchitis, acute or chronic, in the production of phthisis, and reflected on the *general* deposition of tuberculous matter which takes place in this disease, with many other circumstances attending its progress and invasion, and retain his probably previous opinion as to the influence of bronchial inflammation on pulmonary tubercles. Once remove from the mind the impression of a necessary connexion between bronchitis and tubercles, and we feel persuaded that the examination of the evidence brought forward on the subject of dust, will terminate in the conviction that this agent exerts *at most* but a very secondary and unimportant influence in the production of phthisis, compared with other causes to which we shall have occasion to refer. The question is far more than one of speculative interest, as it has already given rise to the exercise of great talent and ingenuity, in inventing means for the removal of an evil which by many has been regarded as the most fatal to which the manufacturing classes are liable. (Would that it were!) It is evident that a comparison of the mortality from consumption in a list of dusty occupations, such as bakers, charcoal-men, grain market porters, thread-makers, cotton-spinners, and rag-pickers (and we might have fixed on any other list), is utterly incapable of deciding the predisposing influence of dust in the production of the disease. The other influences attending these occupations, which are admitted to be *still more* powerfully predisposing to phthisis, reduce the common element of dust to a mere cipher in the account. Some, working in the open air; others, in close-heated rooms; some, actively employed, while others are confined to a sedentary occupation, &c. &c., at once show how necessarily insecure all our results must be from such varying and complicated materials. As another general principle it may be advanced, that by a change of *particles* a change of employment is included, and precisely as dust is evolved from *hard* substances and is more or less *fine* in its texture, the occupation of the workman is sedentary, his posture confined, and muscular exercise limited to the upper extremities. Now these last causes are admitted by all as most strongly predisposing to phthisis (proved by their estimation in occupations where *dust* is not included), and we would ask, why their influence should be diminished by the presence of another apparent cause, more consonant it is true with our preconceived ideas as to the nature of the disease, but which is not present in those occupations where the average mortality from phthisis is the highest? No evidence is more universally cited on this subject than that of Dr. Knight, of Sheffield (Vide *North of England Med. and Surg. Journal*, August and November, 1830.) It does indeed incontestably prove that the occupation of grinding steel instruments, unusually tends to shorten life and induce phthisis. *Dust—dust* is the explanation; but we think the evidence brought forward in its support, tends to an opposite conclusion. We find, in fact, that the grinders, previous to the commencement of the last century, were *not an unhealthy set of men;* at this time they carried on their trade in the *country;* worked *in large open rooms; practised other departments*, as *hafting and forging*, and were often months with only four or five hours work daily. They *now* pursue their profession in *close* rooms, work sixteen hours a day, and are *wholly confined to grinding*. The usual posture is with the shoulders elevated, the elbows resting on the knees, and the body inclined forwards. It is an interesting though painful observation, that the most *dissipated* workmen *live the longest!* (That influence must be fatal indeed which makes vice a means of lengthening life!) The same observer states, that out of 250 workmen employed in polishing steel, 154 had chest affections; while in an equal number of workmen pursuing *other occupations* in conjunction with *polishing*, fifty-six only were affected. There was not an example of a polisher of forks, reaching his 36th year. Magnets, wire masks, currents of air and moisture, have been successively tried for the purpose of arresting the metallic particles, but the *mortality has not been diminished.*

It is impossible not to be convinced that the influence of dust has here been sadly overrated, and blinded observers to the employment of means calculated to counteract the *real* sources of the evil in question. M. Parent du Chatelet, in an interesting memoir on the effects of *tobacco* on the workmen (Vide *An. d'Hyg. Pub.* No. 2), founded on the personal examination of 4518 individuals employed in the different manufactories of France, and who are exposed to the inhalation of irritating vegetable particles, found that they were not at *all peculiarly liable to chest affections*, and that their general health depended on the quality of their food and the number of hours they were employed. It will be seen also, in the work of Mr. Thackrah, that *children*, comparatively, do not suffer in dusty occupations; this he attributes to the greater force of the pabulum vitæ, and their *less liability* to tubercular development. Facts prove the latter opinion to be incorrect; the difference is therefore depending on some other cause. The results also of M.M. Benoiston and Lombard, on the relative influence of mineral, vegetable, and animal particles, are exactly the inverse of each other: the former making animal particles the most prejudicial, and mineral the *least*; the latter giving a very large proportion in favour of the mineral particles (177 per 1000 deaths) over the animal. Let the reader compare these heterogeneous professions, which are congregated together for the purpose of arriving at these results, and he will at least admit that if true in the abstract, they are far from being demonstrated. It is also but fair to notice that M. Benoiston, while he finds the proportion of deaths from phthisis rather more considerable in occupations involving an air charged with animal particles, yet the average mortality of *all* the different professions where the influence of dust is present, is not greater than the general average for occupations not exposed to this additional inconvenience. From the researches of Drs. Young, Leblanc, and Alison, it would appear that stone-masons are peculiarly liable to phthisis. It must, however, be recollected that comparatively few post-mortem examinations have been made for the purpose of determining this question, and that the appearances mentioned by Dr. Alison in his valuable paper, are rather those of inflammation than tubercle. Were the existence of tubercular disease ascertained, the influence of dust in its production is still undecided. The hard nature of the material, the partial exercise of the body, exposure to varieties of temperature, their habits of intemperance, &c., probably exert a far more powerful influence. We find in fact (Vide Benoiston, p. 27), that out of 887 quarrymen, 557 stone-cutters, and 160 marble-workers, the proportion of phthisis was *less* than the *general* average. In a department of France (Meusnes) celebrated for the fabrication of mill stones, in a period of seventeen years no increase of mortality from phthisis, compared with other departments where this occupation was not general, could be detected. M. Thackrah also found no liability to phthisis (which could be attributed to their employment) in plasterers, turners, lime-workers and whitewashers. Let us terminate these remarks by citing the conclusion to which Dr. Lombard arrives by a review of the *whole* of his facts (66), viz. that the influence which modify the *system in general*, such as a sedentary life, &c. &c. are more active in the production of phthisis, than those acting *locally* upon the lungs, as dust, vapours, &c.; and if we reflect that the *latter* agents are never present independently of the former, their *real* activity as causes of pulmonary tubercles is at best but problematical. Our conclusions are in some degree opposed to the opinion of Dr. Clarke in his admirable essay already referred to, but that distinguished observer admits that "in almost every instance the sufferers are exposed to causes (independently of dust) fully adequate to the production of the tuberculous cachexia.

We refer the reader to the original memoirs for full information; our object in these remarks is to remove that settled conviction so generally prevalent, as to the influence of a *local cause* on the production of phthisis. We again say, that the nature of the disease is a powerful á priori argument against the influence of dust of any description, and that the direction hitherto given to our opinions and preventative measures, has tended to distract our attention from the observation of more important and active causes. We are now, let it be remembered, solely considering the inhalation of dust in reference to *phthisis*. Its presence can never be beneficial, and its action on the bronchial and digestive mucous membrane is no doubt often, and probably always more or less injurious. It is not therefore our wish to discourage the use of any means by which the inconvenience may be diminished, but to prove that its immediate action upon the pulmonary organs has hitherto been greatly exaggerated.

Influence of Moisture.

The evidence on this subject is perhaps more uniform and satisfactory than on any other, and tends strongly to expose the fallacy of theoretical opinion. Tanners, dyers, wool-scourers, brewers, washermen, washerwomen, and many other occupations in which the upper or lower extremities are exposed to wet and the air charged with aqueous vapours, present fewer cases of consumption than almost any others. The testimony of Mr. Thackrah and Dr. Lombard on this subject is unanimous, and M. Benoiston is only in contradiction with regard to the washerwomen of Paris, who, as Dr. Lombard observes, pursue their occupation under peculiar circumstances, and on that account offer no criterion for the same employment in other countries. Brickmakers (Thackrah) who work half naked and with their bare feet in the puddle all day, are not more liable to thoracic affections than men whose occupation is under cover, and dry. Longevity is common. M. Parent du Chatelet, in a valuable memoir on the "debardeurs" of Paris, or those who are employed in removing the wood for fuel from the river, where it is floated down in rafts, and who spend the greater part of the day, nearly all the year round, with their legs immersed in the water, are *less liable to chest affections* than the majority of workmen, and their general health is remarkably good. These researches are founded on the personal examination of 700 men, who are constantly pursuing this occupation. This strikingly coincides with the very general opinion that consumption is rare in marshy districts. A general practitioner at Swineshead, in Lincolnshire, has seen only two cases in sixteen years. Dr. Harrison, of Horncastle, in the same county (Vide *Med. and Phys. Journ.*, t. viii., p. 225. 1802), confidently asserts that consumption is less frequent in the marshy districts, than in other parts of his neighbourhood. Cases occurring in a dry situation were checked by a removal to one surrounded by fens. The ingenious and accurate Dr. Wells (Vide *Trans. Soc. Med. Chir.*, vol. iii., p. 471. Lond. 1812), brings forward a variety of interesting observations on this subject. He attempts to prove that the causes of intermittents induce a state of constitution which is a protection from consumption, and says that in countries where one prevails the other is always absent, or at least much less prevalent. He recommends children, predisposed to consumption, to be sent to schools in fenny countries, or to universities in Holland. Morton, Raulin, Rush, Southey, and others, decidedly recommend a *dry climate*, but their advice seems principally founded on theoretical views. Compared with the statistical results to which we have alluded, the evidence of Dr. Wells and others is not without considerable interest, and numerical details from the marshy districts of England would be highly desirable. The effect of moisture on consumption may also be indirectly inferred, by considering the influence of opposite conditions, viz.

A Dry and Hot Atmosphere.

Dr. Lombard, in 244 deaths among individuals exposed to this influence, as enamellers, file makers, smelters, and founders,* finds the average of phthisis more than double that of the preceding class. The first was 53 per 1000; the last 127. He also thinks that in certain occupations, as watchmakers, jewellers, and goldsmiths, the mortality from phthisis may in part be attributed to the hot and dry atmosphere to which they are exposed. Mr. Thackrah, on the other hand, from the observation of sugar refiners, men employed in the dryhouses of cloth, in singeing cloth, stuff pressers, calenderers, glass workers, stovers, iron founders, many of whom are constantly exposed to sudden changes of temperature, did not find any peculiar predisposition to pectoral affections, nor any prevalence of those complaints so commonly attributed to this cause. It will be recollected that workmen in these departments are generally subject to great muscular exercise and almost constant activity of the cutaneous functions.

Animal Emanations.

There is but one opinion on this subject, viz. that individuals exposed to their influence are *less* liable than others to consumption. Butchers, tanners, leather dressers, candle makers, nurses, soap boilers, knackers, or those engaged in killing and cutting up dead horses (Vide *Lond. Med. and Phys. Journ.*, vol. vi.), men employed in the dissecting rooms, in exhumations, catgut makers (Labarraque), nightmen, are mentioned without any exception, as enjoying a high standard of health and freedom from pulmonary complaints.

Vegetable Emanations.

Those who work in the open air as agriculturists, gardeners, florists, and who are liable to emanations from living plants, are decidedly among the most healthy. The occupation of crushing rape and mustard seed, appears peculiarly beneficial. (Thackrah, p. 58.) Starch makers, bakers, &c. who are exposed to the effects of vegetable fermentation do not appear affected, and from the interesting researches of M. Parent du Chatelet and M. Girodet in No. 14 of the *Ann. d'Hyg. Pub.*, on the maceration of flax, it is probable that many of our generally received opinions respecting the influence of vegetable decomposition on health, are erroneous.

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* Out of forty-seven deaths not one was from phthisis, which Dr. Lombard thinks may be attributed to the moisture which their occupation requires.

Mineral Emanations.

The evidence relative to mercurial vapours is very contradictory and insufficient to determine their real influence in the production of phthisis. At Geneva, phthisis among gilders is rare; at Paris, it appears frequent. The effects of lead, antimony, &c., while they act powerfully upon the nervous and digestive systems do not appear to predispose to phthisis. The tendency of metallic fumes to produce scorbutic symptoms and that of mercury to maintain an alkalescent state of the fluids, would both militate theoretically against their favouring tubercular deposition.

Influence of Impure Air.

Dr. Lombard, by a comparison of all the professions carried on in the open air or in workshops, found the proportion of deaths from phthisis *double* among the latter, and this proportion increased as the apartments were close, narrow, and imperfectly ventilated. Other facts however, prove that an impure atmosphere, when not associated with other deleterious influences, cannot be regarded as peculiarly predisposing to phthisis. In No. 107 of the *Edin. Med. and Surg. Journal*, there is an interesting paper by Mr. Watson, surgeon of Wanlockhead, a mining district. After an experience of fifteen years, he concludes, that miners are not more liable to phthisis than others. He gives an account of seventy-four men, working during four or five months, for sixteen hours daily, in a mine where a candle burnt with difficulty. Not one was attacked with any pulmonary affection. The average mortality among the miners was less than among the other inhabitants. In No. 3 of the *Annales d'Hyg. Pub.*, M. Parent du Chatelet gives a tabular view of the health of thirty-four workmen employed in cleansing the sewers of Paris. Their ages varied between 17 and 35, and they had pursued the occupation from six months to fifteen years. Not one became phthisical, or presented any chest affection. Colliers do not appear liable to phthisis, and though many species of mining interfere with the general health, consumption does not seem to prevail. Dr. Forbes, in his notes to Laennec, says, that the great majority of the miners in Cornwall are destroyed by chronic bronchitis. If consumption is rare under these circumstances, it would be a striking confirmation of M. Louis' opinions on the distinct nature of bronchitis and tubercles.

Influence of an Active Life in the open Air.

On this point it may be sufficient to state that all occupations involving these two conditions are admitted by every observer, to present a much smaller proportion of individuals attacked by phthisis than any others: husbandmen, butchers, carters, coachmen, sailors, coopers, quarrymen, &c. may be cited.

Influence of a Sedentary Life, with a confined posture of the Body.

Of all the causes which seem directly active in the production of phthisis, this appears the most general and influential; it must never be lost sight of when estimating the predisposing tendency of particular professions. However variable the situation of the individual in every other respect, wherever these two conditions are present, phthisis may be confidently asserted to prevail, and its prevalence, according to Dr. Lombard, p. 33, is in proportion to the more or less muscular exercise certain sedentary occupations require. As a general rule also, sedentary employments are more fatal among women than men. Tailors, shoe-binders, shoemakers, milliners, lace-makers, printers, engravers, jewellers, watchmakers, clerks, &c. &c. may be more peculiarly regarded as the victims of phthisis; and in our manufacturies, there is no doubt that a far greater number of consumptive patients is produced by the want of exercise and a confined posture of the body, than by those special and in general local influences to which the disease has been so often erroneously attributed. It will be at once seen to what an extensive portion of our population, both in the middle and lower classes, these remarks are applicable, and consequently the immense importance of being aware of the fatal tendency of an influence, which has been often overlooked or regarded as secondary to other causes which perhaps may now be considered as comparatively inert. The increased mortality among females, arises not only from their being principally exposed to the influences we are considering, but from their great privations on account of their diminished wages, &c., and other bodily derangements peculiar to the sex. The number of hours the workmen are employed, the time allotted for their meals, and the quality of their food, no doubt powerfully modify the results, but we have no positive information by which we may define the extent of these influences. There is one conclusion in Dr. Lombard's memoir, which may perhaps be illustrative of the influence of food, viz. that the poorer classes are *twice* as liable to phthisis as those in easy circumstances. It is founded upon comparing the number of professions which are above or below the general average in either division, and since sedentary habits and a confined posture of the body are more or less common to all, this great difference in the frequency of phthisis may in part at least be attributed to food.

There does not appear to be any foundation for the opinion that occupations requiring *violent exercise of the upper extremities*, (as blacksmiths, sawyers, locksmiths, &c.) predispose to phthisis.

Exercise of the Vocal Organs.

M. Benoiston was only able to collect twenty-four examples of occupations involving this condition, and among these no peculiar tendency to phthisis could be traced. Dr. Lombard fully comfirms this result. Out of 254 deaths, including schoolmasters, preachers, professors, barristers, musicians, and officers, the mortality from phthisis was only 75 per 1000 deaths, while we have already stated that the *general* average from all professions indiscriminately was 114. The exercise therefore of the vocal organs is beneficial rather than injurious. The reader must not forget that we are considering the activity of different influences in the *development* of tubercles, not their effects on individuals who are already tuberculous; and although, for the sake of brevity, we have often resorted to the simple form of assertion, the preceding remarks are based upon a very large series of observations, collected by different observers, and are not to be confounded with the innumerable vague and indefinite surmises which we find scattered through the various monographs on phthisis. The necessity for examining a large mass of facts, and reuniting a variety of professions in which the influence of some common condition may be traced, must be apparent to all. An infinitude of accessory causes may interfere with accurate conclusions, when bounding our examination to particular occupations; but the errors to which our details are always more or less liable, are corrected by a greater extent and variety of materials. It is to the partial observation of particular facts that we may attribute the contradictory nature of the evidence on the causes of consumption.

In concluding our remarks upon the influence of professions on phthisis, we will briefly enumerate those general causes which may be regarded as injurious or preservative.

Influences which predispose to Phthisis.

First—A sedentary life, more especially when associated with a confined posture of the body. Second—Bad quality or insufficient quantity of food. Third—The impure air of workshops. Fourth—A dry and hot atmosphere, with a variety of mineral and vegetable emanations; the effects of which however, independently of those influences already stated, are far from being satisfactorily proved. Fifth—The action of different kinds of *dust*, the activity of which, like the preceding, is in all probability very much less than has been hitherto supposed.

Preservative Influences.

First—Muscular exercise, particularly in the open air. Second —An air charged with animal emanations. Third—*Moisture.* Fourth—Exercise of the vocal organs. Fifth—Nutritive food.

The essential practical deduction from the foregoing details, is, that *continued sedentary employment, a confined posture of* *the body*, and the want of air, exercise, and wholesome food, are the immensely preponderating causes of phthisis; and that other influences acting locally on the lungs, and which have always been regarded as most deleterious, are supported with comparative impunity, when disassociated from those we have first enumerated.

There are few evils which cannot at least be mitigated, if not avoided, where we have accurate ideas of the causes which produce them; and the means to be adopted for diminishing the victims to consumption, are at once indicated by the inspection of the foregoing details. It is evident that the attention of observers has been too much directed to what may be considered rather as accidental, and in many cases, unimportant accompaniments, than to the really active and efficient causes of phthisis. The registers of mortality prove that our prophylactic measures have hitherto failed; the subject therefore demands renewed investigation, and its vast importance entitles it to our most serious attention. The infinite sub-division of labour which the increasing and artificial wants of society involves, is daily multiplying the sources of phthisis, and without adopting some effectual preventative measures, this fatal scourge upon the manufacturing and commercial prosperity of England, will annually extend its baneful influence. In what those preventative measures must consist to be really effectual, we shall briefly point out in our remarks on treatment.

Influence of Climate.

On no subject has more been written or less satisfactory information been obtained; the ideas of a changeable climate and phthisis seem almost inseparable, and more particularly with respect to England, consumption has been regarded as one of those necessary indigenous evils, to which, as a nation, we were inevitably doomed. If however we reflect that no climate is exempt from phthisis, that in the northern and torrid zones it is far less general than in the more temperate regions of the globe; that in the *same climate* its relative prevalence among particular classes of individuals is immensely different; that in countries where this disease is *unusually frequent*, those who are *least* exposed to its influence, are precisely those *most* exposed to the vicissitudes of the climate; we cannot but confess that the importance of the latter in the production of phthisis, has been much exaggerated and far too exclusively considered. Its action on the human frame must be admitted to be extremely complex; the ultimate result, as Dr. Copland says, arising chiefly from the combined operation of heat, light, electricity, atmospheric pressure, the various emanations arising from the soil, and the productions vegetable and animal constituting the food of man. Independently of these numerous considerations, the grand and in our opinion most important influence of *civilization*, renders the appreciation of climate peculiarly difficult; and the simple inspection of mankind in different countries, forces us to admit, that the most *variable* climates, notwithstanding the disadvantages imputed to them, are the *most favourable* to the advancement of the various bodily and mental powers. Countries thus circumstanced are rather benefited than injured by this state of the weather and seasons, as is illustrated in the robust frames, mental activity, and the longevity of their inhabitants. The physical and moral condition of the British Isles, Denmark, Sweden, and the more continental districts of Western Europe, demonstrate this fact. In no country are the animals finer than in England, or the inhabitants viewed as a community more robust, and if under these circumstances, a disease of the nature and character of phthisis is found to prevail, and its frequency can be traced to particular classes of individuals, evidently exposed to influences which are in no wise depending on the climate of the country they inhabit, its prevalence must necessarily be ascribed to other causes, and not attributed to what has been too easily admitted as a powerful agent in tubercular disease. The reader must not mistake the spirit of our remarks, or suppose that we are denying the influence of a changeable climate on delicate predisposed constitutions; nor are we ignorant of the fact that the sudden change from a hot to a cold climate is frequently followed by pulmonary consumption, but we are simply examining the natural tendency of a particular climate, abstractedly considered, to induce tubercular disease in those habitually submitted to its influence; and after perusing the works of Clarke, Young, Laennec, Mosely, Beddoes, Wells, Southey, and Fothergill, we have not been able to collect any conclusive evidence upon the subject. All calculations where the occupations, food, habits, &c. of the inhabitants are not duly considered, may be regarded as negative; for, having once demonstrated that the maximum of liability to phthisis in a country like England, is found among those least in contact with the variations of its climate, the influence of the latter must be regarded as secondary to the action of causes, without the previous agency of which it would have been comparatively if not wholly inert. We are unable to favour the reader with any positive evidence on the relative frequency of phthisis on the sea coast or inland, numerous details and exact appreciation of the changes in food, occupation, &c. which one or the other involves, would be necessary for the solution of this important question. The most contradictory opinions have been entertained, and in the present state of our knowledge we prefer avowing our ignorance, to the expression of an opinion which can have little else for its support than theoretical assumption. The observation by Dr. Rush, that phthisis is unknown among the Indians of North America and very uncommon among the colonists *in the first stage of civilization*, is most interesting and highly confirmatory of the preceding remarks; we are much inclined to believe that were the influence of climate unconnected with all other causes, the activity of which is incontestable, in the present state of our evidence it would not admit of demonstration, and that in England, the prevalence of phthisis is owing to the requirements of fashion and commerce, rather than the consequence of our much calumniated climate.

Contagion of Phthisis.

This question is decided in the affirmative by the majority of authors from Aristotle down to modern times; we have not however been able to collect the slightest satisfactory evidence in favour of the conclusion, but have waded through a mass of incomplete and often absurd facts, which are rather painful illustrations of the credulity of many of the most distinguished ornaments of their profession, than data to regulate the decision of any philosophical enquirer. The difficulty of determining the contagious nature of a disease so prevalent as phthisis is very great, and the number of facts necessary for its substantiation would be considerable. Without attempting to offer any decision upon the subject, we may remark, that the pathology of the disease, its progress and causes, when compared with what we know relative to diseases whose contagion is not doubtful, all tend to favour the idea that consumption is not contagious.

In the memoir of Dr. Lombard, *attendants upon the sick*, both in the hospitals and elsewhere, are invariably classed in the lists of Geneva, Vienna, and Hamburgh, as among those who are *least exposed* to phthisis. This fact is not easily reconciled with the idea of contagion. The negative evidence also of Beddoes, Young, Russell, and Portal, is more decisive than any which has been adduced on the opposite side. Wherever doubt exists, the judicious practitioner will of course studiously avoid all unnecessary exposure; but there are quite sufficient reasons, independently of any idea of contagion, to render the prevention of the attendance of delicate predisposed individuals on consumptive or other patients, both prudent and desirable.

Dr. W. Philip, in his valuable little work on the employment of minute doses of mercury, p. 57, insists strongly on the influence of neglected bilious complaints in the production of phthisis; stating, that according to his experience more than half of the cases of pulmonary consumption are of this nature, and might with certainty be prevented by removing the cause of irritation, before the nerves, which convey the effects of the irritation to the lungs, had essentially influenced the state of their vessels. The general pathology of the disease, renders it highly probable that derangement in the digestive functions is a primary and frequent cause of phthisis, as indeed is every influence which interferes with any of the important functions of the body, though from the almost invariably morbid state of the alimentary canal in conjunction with pulmonary tubercles, the occasional predominance of gastric over thoracic symptoms, and more particularly the *special* character of the alterations observed in the liver and digestive tube, and their dependance on the state of the pulmonary organs, it is to be presumed, that the direct influence of bilious complaints on consumption has been overrated, and that the secondary effects of tubercles in the lungs have been often regarded as the causes of those pulmonary symptoms, which are frequently so latent in their character and tardy in their manifestation.

It has been generally supposed that the *seasons* exerted a powerful influence on the mortality from this disease, and the Hippocratic opinion of the fatal influence of autumn has generally prevailed. The only numerical details we have been able to collect are in the memoir of M. Benoiston. Out of 12,668 deaths from phthisis, occurring at Milan, Paris, and in the surrounding country, the proportion in the different seasons was as follows:—

Autumn	3001	12,668
Winter	3109	
Spring	3482	
Summer	3076	

These results are almost negative; the question is still undecided, and it is more than probable that the result in each country will vary with the local peculiarities of the climate.

We do not intend occupying the reader's attention by the enumeration of the long lists of supposed causes of phthisis, believing that it is far better to be ignorant of the cause of a disease, and to avow this ignorance, than to refer it slightly and without proof to the action of influences which in no wise contribute to its production. In the latter instance we are wandering in the dark, exciting unnecessary fears and giving useless if not dangerous advice; while by withholding our decision, we remain as it were on the defensive, and retain that state of mind which is favourable to the research and discovery of truth. Opinions have too often acquired solidity by repetition, rather than by the addition of any positive evidence adduced in their support; and it is so much easier to cite the authority of names than that of facts, and to coincide in the opinions of others rather than test their validity, that it is not difficult to trace the inroads of those errors and absurdities by which medicine is so obscured and retarded. No branch of investigation has more extensively suffered from the tendency to which we are alluding, than that of the *causes* of disease. Prejudice, superstition, and system, have principally laboured in their creation, and it is the difficult task of the modern inquirer, to extract truth from the crude and amorphous materials amassed by these powerful but deceptive agents. The importance however of the inquiry is immense, and if pursued with no other intention than the discovery of truth, will not only increase the sum of our knowledge, but exert a beneficial influence on mankind at large.

CHAPTER XII.

TREATMENT.

482. It was simple, and varied according to the indications. These were founded on the state of the functions, and the different complications occurring in the progress of the principal disease.

483. Upon the arrival of the patient, if there was very little or no fever, no thoracic complication, (as pleurisy, pneumonia, hæmoptysis, &c.) and if the digestive functions were not deranged, we prescribed, whatever might have been the stage of the disease, the decoction of Iceland moss, a mucilaginous mixture, and frequently small doses of syrup of poppies to allay the cough and procure sleep. One-fourth or less of the usual house allowance in proportion to the appetite: the food was afterwards either increased or diminished, as circumstances pointed out.

484. When fever was present, without local inflammatory symptoms, as was the case in the second stage, we ordered infusion of the pectoral flowers, a mucilaginous mixture, some broth, with two rice creams daily.

Under this regimen, the violence of the fever abated, and there was general improvement in all the functions; the thirst was less urgent, the appetite increased, the breathing was easier, and the appearance of the expectoration more favourable; the food was always regulated by the state of the appetite; vegetables and frequently milk were allowed. This amelioration was more or less permanent, but after a certain time some complication invariably supervened, requiring a change in the treatment.

485. If the patients entered the hospital soon after the commencement of the disease, when the symptoms were more or less acute, the infusion of violets, a simple mucilaginous

mixture, diet, and usually venesection in proportion to the strength, were prescribed. Leeches were also applied to the labiæ when the catamenia were suppressed or irregular, but only when the disease was not chronic in its progress, and when fever was present. Bleeding, either local or general, under these circumstances, exerted little or no influence over the disease.

486. When the *cough* was very troublesome during the night, we prescribed at first an ounce or half an ounce of syrup of poppies in the evening, and if this did not succeed, we ordered a mucilaginous mixture with gradually increasing doses of opium; from one to three grains. In some obstinate cases the acetate of morphia and extract of belladonna were successively tried without any additional success. In four cases where opium under every form had failed, it was given during the day in doses of from one to two grains, without any diminution of the cough; in three of these it was suppressed on account of it occasioning pains in the throat. These pains were pungent, with sense of dryness and slight hoarseness coming on half an hour, an hour, or even sooner after the pill was swallowed: the deglutition was also difficult, though there was no redness of the pharynx or amygdalæ. These symptoms were also renewed whenever belladonna was taken, and persisted from two to three hours.

487. *Pleuritic pains*, when urgent, required particular attention. If present in the earlier periods of the disease, and accompanied with fever, venesection was prescribed and repeated if necessary; leeches were then applied and afterwards a blister. Under this treatment the symptoms abated, but did not wholly disappear; the effusion was not completely absorbed, and the pains occasionally returned. At a more advanced period, when the emaciation and debility were considerable, some leeches or a small blister were the only remedies resorted to.

Pneumonic symptoms were treated precisely in the same way, and as we have already remarked, with success.

488. Venesection was also employed in cases of copious hæmoptysis; but although carried to great extent in three instances (*Obs.* 16, 42), it failed to arrest the hæmorrhage. In one case (*Obs.* 10), a large blister was applied between the shoulders, without any evident success; in another (*Obs.* 42) the hæmorrhage was arrested after the administration of a

mucilaginous mixture with half a drachm of the powder of ratanhy root. On the first day the hæmoptysis was much diminished, and on the third ceased altogether. If this accident was slight, the expectoration only presenting a red tint, and the debility very considerable, we confined ourselves to demulcent drinks, hand and foot baths, enemas and diet. In some cases, under these circumstances, a very small bleeding was practised with evident success, the red colour of the sputa disappearing very soon after the vein was opened.

489. In six cases where the *dyspnœa* was considerable and there was no disease of the heart or acute affection of the lungs, in two cases blisters were applied over the sternum with only partial success. Where the same application was made to the arm, the patient has never appeared benefited in any way. In four examples of acute phthisis, blisters were also applied to chest after venesection, without any decrease of the oppression, fever, or cough; so that bleeding and derivatives have failed in the majority of those cases we have observed.

490. In three of the instances where the alteration of the voice and pains in the larynx indicated ulcerations in this region, leeches were twice applied to the neck and succeeded by a blister, without any success. This treatment was opposed to the ulcerations of the trachea (usually indeed giving rise to no symptoms), but from their frequency as well as those of the epiglottis and larynx, the application of medicated vapours at a certain period of the disease, would perhaps be advantageous.

491. The sulphate of quinine was given in some cases where the rigors were very troublesome and regular in their recurrence; they yielded to the febrifuge, but the heat persisted, and the rigors also returned when the remedy was abandoned. In one case (*Obs.* 41), its suppression was necessitated by the gastric symptoms, &c. which it occasioned.

492. In six cases, the acetate of lead was employed to check the *perspirations*, in doses gradually increased to twelve or fifteen grains daily, but in only one case with success. In one instance it was replaced by the infusion of bark or peppermint, without any advantage.

493. The *stomach* often gave indications for treatment. When it was the seat of acute pains, accompanied by heat, and the emaciation and debility were not extreme, leeches were

applied to the epigastrium; they diminished the pains for a short period, but they returned with nauseæ and vomiting. When there was great general weakness, emollient drinks and external applications were the only remedies employed; a solution of gum or tartaric syrup if the thirst was urgent; but all drinks soon inspired disgust, producing a sense of weight and difficult digestion in the epigastrium. The eau de Seltz diluted, relieved the vomiting for some days, but soon lost its effect. Opium neither diminished the pain or vomiting, which arose, as we have seen in the great majority of instances, from the softening and thinning of the gastric mucous membrane.

494. When the *diarrhœa* was slight, the food was simply diminished, and rice water with gum syrup prescribed. If more urgent the quince syrup was substituted. Under this treatment it sometimes remained stationary or was even suspended, but usually it increased, and in this case the white decoction and the diascordium, either with or without opium, were ordered, but in general unsuccessfully. Twenty-five patients were submitted to this treatment, from twelve to forty-eight days before death. They may be naturally ranged into three classes; in some there were ulcerations in one or both intestines, with considerable softening of the mucous membrane of the colon, which was often red and thickened; in others the ulcerations were considerable, and the softening of lining membrane of large intestine nearly as in the first class; in a third, the mucous membrane was simply softened, without redness or ulceration. In the first, including fifteen cases, the diarrhœa was diminished in three after the administration of the diascordium, and continued so till death: in one of these instances the softening was inconsiderable. In the second division, a similar result was obtained in eight individuals, in one of which there was only a large ulceration in the cœcum.

Lastly, in one patient of the third class, where the diarrhœa was very copious before taking the diascordium, it was much diminished from the moment this medicine was prescribed, and continued so during the forty days preceding death; so that out of twenty-five cases, six only appeared to have been benefited by the diascordium; we must also add that in three instances where the mucous membrane of the colon was ulcerated, softened or thickened, the diarrhœa was increased by the diascordium. The decoction of cachou was also employed with the same intention, in doses of four to eight ounces. Sixteen patients took it; in five of these the debility was too great and death too near to appreciate the action of medicine. The eleven others began its use from two to three weeks before death, and five appeared benefited. In one of these, however, the suppression of the diarrhœa was immediately succeeded by uneasiness, anxiety, thirst, heat in the throat, &c. After death, we found evident traces of recent inflammation of the mucous membrane of the stomach and trachea, which might easily in this instance as in many others, have been spontaneous, and not resulted from the remedy employed; there were also numerous intestinal ulcerations with softening of the mucous membrane of the colon. These last lesions were equally present in the other cases. Ratanhia root was also tried without success. Lastly, opium was prescribed in five cases, but appeared beneficial in only one instance.

Thus diascordium, cachou, opium, appeared equally efficient in checking the diarrhœa of the *advanced stage* of phthisis; and from the difference which exists in the action of cachou and opium, we may suspect that the successes we have mentioned are rather apparent than real.

We may observe, while on this subject, that towards the close of chronic diseases, and particularly phthisis, that it would perhaps be preferable to avoid any stimulating plan in the treatment of diarrhœa; for, from the facts we have related in the first part of this volume, diarrhœa, in the majority of instances, is depending upon an inflammatory state of the mucous membrane of the large intestine, which is soon followed by disorganization; that this membrane being the principal source of the diarrhœa, our remedies should be chiefly applied to its surface. Let us add, always on the testimony of facts, that the last period of chronic diseases is favourable to every kind of inflammation, a fact which should always be remembered whatever class of symptoms may be predominant; also, that the gastric mucous membrane is then frequently affected, an additional reason to avoid, in general at least, the use of violent internal remedies.

TREATMENT OF PHTHISIS.

"C'est à *l'hygiène* qu'il faut démander la cure des affections invétérées, et surtout, de celles qui comme la *phthisie pulmonaire* sout lieés au plan même de l'organization et à la manière dont les fonctions sont modifieés par les agents dont nous sommes journellement influencés."—Broussais' *Phleg. Chron.* vol. ii. p. 253.

In the following observations it is not our intention to lay down any precise and definite rules for the treatment of consumption, but to direct the reader's attention to some general conclusions relative to the nature of the disease, founded on a review of its pathology; to enumerate some of the more prominent preservative and curative indications resulting from a knowledge of its causes; and to give a brief outline of the principal remedies which have been successively proposed, leaving to the judgment of the practitioner their selection, and to maturer experience the determination of those infinite combinations on which their successful application depends.

Pathology would indeed be an arid and thankless science, did it only lay bare the disorganization of our frame, and were it not associated with the hope, nay, certainty, of ultimately rationalizing the employment of our therapeutical agents. Its legitimate object is the cure of disease, and though perhaps never conducting us to the discovery of specifics, it must necessarily tend to define those conditions against which our remedies are directed, and shield us from that painful and injurious uncertainty, invariably attending our ignorance of the seat and nature of disease. Exactly in proportion as pathological knowledge has advanced, simplicity of treatment has prevailed. The complicated formulæ of a dim superstitious and fanciful physiology, are rapidly yielding to the more simple indications of positive knowledge, and at the present moment, perhaps there is no surer criterion of our deficient information as to the real nature of any particular affection, than the variety and complex character of the means which are proposed for its cure. The most incurable diseases abound most in specifics, and on the substratum of our ignorance, prescriptions accumulate with empirical rapidity. No disease more strongly illustrates the truth of these remarks than phthisis. It has constantly been the victim of pharmacopœal experiment, while in recent researches we can alone discover any accurate ideas as to its nature and seat.

From an impartial review of the numerous details scattered through the course of this volume, we feel justified in concluding,

That phthisis, though generally commencing in the lungs, cannot be regarded merely as a *local* disease of these organs, but depends on some constitutional tendency resulting from the impression of causes which especially react upon the general health, and the more or less prolonged influence of which, terminates in the formation of tubercles.

That while certain constitutions from hereditary or other causes are peculiarly liable to this termination, yet that *none* are exempt or incapable of becoming tuberculous, and both from the *nature* of the causes, the *universality* of the disease, and the *variety of organs* in which tubercular deposit takes place, it cannot be regarded as a *specific*, but as an almost *physiological* and necessary consequence of the more or less prolonged application of influences, which interfere with the normal discharge of the nutritive functions of the body.

That no *age* is exempt from tubercular formation.

That in children tubercles in general occupy a greater number of organs than in the adult, and are not, as is the case after the age of *fifteen*, invariably first deposited in the lungs.

That a predisposition to phthisis may exist an indefinite period of time, but that under these circumstances the action of almost any influence interfering with the general health, may give rise to tubercular development.

That tubercles may remain latent in the lungs, and with the exception of those instances in which they are rapidly developed, frequently do not in their crude state, and even occasionally when softened (vide cases of latent phthisis), give rise to characteristic constitutional symptoms.

That the number of organs affected, and the extent of tubercular deposition in the lungs, may be regarded as in general proportionate to the predisposition previously existing, but that in many cases of acute phthisis, the lungs may be extensively tuberculated as well as the other organs, while in many subacute and long protracted cases, the portion of the pulmonary tissue which is affected and the amount of tubercular deposition generally, may be inconsiderable.

That tuberculous matter may be at once secreted in the form to which the term "tubercle" is usually applied, but that in the lungs especially, and occasionally in the other organs, some previous modifications of structure occur, which may be regarded as preliminary steps to the formation of tubercles, and depending on the same diathesis.

That no incontestable evidence exists to prove the absorption of tubercles in the lungs; but the presence of cretaceous deposit and the history of many individual cases, render the fact highly probable.

That tubercular excavations are capable of cure independently of all medical aid.

That the softening of tubercles in the lungs is usually accompanied with both local and generally inflammatory symptoms, and that the progress and duration of the disease are subject to incalculable variations, depending on constitutional peculiarities and the condition of the other organs.

That the lesions of the *digestive tube* are the most frequent and important after those of the lungs.

That the number and extent of the secondary lesions are proportionate to the violence and duration of the febrile excitement, and that several of these morbid alterations are equally characteristic of phthisis with the more prominent organic modifications of the pulmonary organs.

Lastly, we believe in common with Dr. Clarke, and many other pathologists, that the real cause of tubercles, is a morbid condition of the general system, hereditary in some, and in others, induced by a series of functional derangements, ultimately affecting the whole animal economy.

It would be easy to enumerate other pathological peculiarities of phthisis, but many of them have already been insisted upon in the course of the work, and our object at the present moment is simply to justify the grand therapeutical deduction, that in the cure of consumption our principal reliance must be placed upon *general* rather than *local* measures; to the latter attention has hitherto been far too exclusively directed.

We have already remarked, that the nature of the really active *causes* of phthisis strikingly confirms the conclusions we have drawn from the examination of its pathology, and we shall now briefly advert to some of those practical inferences which result from their consideration.

Among the most fatal and generally active causes of phthisis in our manufacturing and other classes, are sedentary occupations and a confined posture of the body. It needs no arguments to show how they are to be counteracted. The workman, whose employment exposes him to these injurious influences, should take regular and daily exercise in the open air, be restricted in the number of hours he is employed, and never be allowed *exclusively* to follow any one occupation which experience has now shown will almost inevitably shorten his life and terminate in phthisis. He should *alternately pursue other departments of his trade*, requiring very opposite conditions for the muscular system; and if in some few instances his manual dexterity may be impaired, his life at least would be prolonged and his general usefulness and activity increased. However imperative and multiplied may be the wants of civilized society, we cannot be justified in supplying them at such an immense expense of human life, and still less in not systematically enforcing regulations, which, if not obviating the evil, would undoubtedly materially lessen the amount of its influence.

In all our manufactories where children are employed, gymnastics should be erected, and some short intermissions from their confined and sedentary postures be devoted to active and wholesome exercises. Baths should be provided, by which not only cleanliness might be promoted, but the important functions of the skin invigorated; and let it never be forgotten that charity does not only consist in furnishing an asylum in which the wretched victim of our artificial wants may expire, or in procuring the assistance of medicine by which some temporary relief to his sufferings may be afforded, but in surrounding him with our care when in health, and in the exhibition of our solicitude to prevent those evils, to which he is now, too often, inevitably doomed.

The importance and extent of our manufacturing classes is such, that all inquiries calculated to elucidate those causes which injuriously affect their general health, address themselves to our most serious attention, and we think sufficient evidence has been brought forward to prove that those measures which have hitherto been put in force, for diminishing their liability to phthisis, can never be attended with success while the far more fatal evils of a sedentary life and confined posture of the body are continued. These remarks are equally applicable to a variety of other trades and professions, and it is only necessary for the practitioner to be aware of the fact, to be enabled at once to seize the indications, and adapt his preservative measures to the peculiarities of individual circumstances.

From what has preceded, we may deduce the injurious tendency of every thing which can interfere with the free action of the lungs, such as various articles of dress, the acquirements of certain accomplishments, protracted hours of study, and the absence of all free and unconstrained exercise in the open air. To these may be added late hours, stimulating food, and a variety of other details, by which gentility is purchased at the expense of health, and a state of constitution formed which becomes the prey to the first accidental influence to which it may be exposed.

The greater liability of women to phthisis is an almost necessary consequence of the truth of the preceding remarks, and should increase our solicitude, more especially where any predisposition exists, early to enforce our preservative measures.

From the evidence which has been adduced relative to the effects of *moisture*, the utility of aqueous vapours whenever the workman is exposed to a dry and heated atmosphere, may be fairly deduced, and on similar grounds the selection of a moist climate, in preference to one of an opposite description, would be justified. The same consideration would also point out the superiority of a residence on the sea coast; always supposing that other important considerations, such as temperature, exposure, &c. have not been overlooked.

The influence of *impure air*, while evidently less than has been generally supposed, is still very sensible under particular circumstances, and points out the advantages of strict attention to ventilations, the necessity of lofty and capacious workshops, and the avoidance of crowding too many into the same apartment.

Another and most important deduction is the benefit that would result from a sufficiently early *change of occupation* in those cases (and they form the great majority), where freedom from labour, and removal to a warm climate are impossible, and where death is inevitable if the injurious employment is continued. Those occupations where the individual is exposed to more or less muscular exertion, particularly in the open air, to animal emanations and moisture, as for instance, gardeners, ploughmen, butchers, coachmen, tanners, excisemen, bookbinders, dyers, grooms, &c., might be advantageously substituted, and would constitute one of our principal resources in the treatment of phthisis among the lower classes.

We again say that to be effectual, it is against those influences, the direct tendency of which is to induce that state of the constitution which precedes the development of tubercles, that our prophylactic treatment must be directed; they are to be viewed as the essential causes of phthisis, the real sources of the activity of those secondary agents to whose influence too exclusive attention has been given. "Consumption may be regarded," says the warm and philanthropic Beddoes, "as a vast pit-fall situated on the high road of life, which we have not sense enough of our common interest to agree to fill up, or fence round," and it will still gape for its victims until our preservative measures are guided by more accurate knowledge of the causes and nature of the disease. "There is certainly no subject (says Dr. Clarke) connected with health, which possesses greater claims to the attention of the inhabitants of this country, than that which relates to the causes and nature of that class of diseases of which consumption is one of the most frequent and most fatal forms. Until we arrive at a knowledge of the state of the system, which leads to the formation of tubercles, and of the circumstances which induce this state, we cannot hope to establish rules for the prevention of consumption upon any sound principles." We have already expressed our conviction of the inefficiency of our curative measures in the great majority of instances *after* pulmonary tubercles are formed; prophylactic treatment is therefore unusually important, and we do not hesitate to say, in the prevention of a disease like phthisis, would be unusually successful. In what it ought to consist, the pathology and causes of the disease at once point out, while its selection must be guided by the individual peculiarities of the case. In proportion as predisposition exists, more particularly when associated with the peculiar liability of sex, the greater the necessity for an early and systematic employment of all those means by which the general health may be supported and improved. They consist in air, exercise, food, clothing, change of climate, change of occupation, the use of baths, and attention to the functions of the skin and bowels generally, with the avoidance of all those habits and influences which tend in any way to counteract the object we have in view, viz. increasing the tone and vigour of the constitution. While in the vast majority of instances our preservative treatment can only be partially enforced, yet there are few cases in which much good might not be effected when fully aware of its power, and we feel it impossible to insist too strongly upon the immense importance of adopting means for the *prevention* of phthisis, believing that in the present state of our knowledge, they are alone capable of materially lessening the fatal ravages of this scourge of civilized man, and of England in particular.[*]

We shall now take a brief survey of those means which have been recommended by the majority of authors *after* pulmonary tubercles are formed; enumerating them individually, and extending their application to the different periods of the disease, leaving the appreciation of their relative value and choice of combination to the judgment of the reader. Our object at the present moment is the accumulation of materials for treatment, not their adaptation to any peculiar views we may ourselves entertain.

The earlier period of phthisis is usually characterised by a dry cough, clear expectoration, pains in the chest, hæmoptysis, slight hectic, increased sensibility to cold, more or less emaciation, and some modification of the respiratory murmur and percussion in the upper portion of the chest. It is in this stage of the disease that we have the almost unvarying testimony of authors, from Hippocrates downwards, in favour of a *milk and vegetable diet*; and if we consider the tendency to and in general presence of febrile excitement, with the frequency of gastro-intestinal derangement in this affection, the advantages connected with such a diet, as a general principle, can scarcely be contested. There are however, many cases (more particularly when the scrophulous constitution predominates), where animal food and moderate quantities of malt liquor and wine might be advantageously substituted; but these are the exceptional cases, and do not negative the united testimony of the most judicious and practical of our writers, in favour of a milk and vegetable diet. M. Broussais (Vide *Phleg. Chron.*, vol. ii. p. 361), adduces some striking evidence in favour of the advantages resulting from limiting the patient to two pints of milk, with from two to eight ounces of bread daily, during six weeks or two months. In the examples mentioned, the symptoms were acute, recent, occurring in adults, and giving every reason to suspect (local symptoms are not mentioned) tubercular deposition. In all, the result was most satisfactory. Ass's and goat's milk may be tried, should cow's disagree; the latter however may in most cases be rendered digestible by boiling—mixing it with small quantities of flour, lime water, soda water, mineral waters (Hoffman), distilled aromatic water (Broussais), &c. Should it still disagree, we may try light broths, animal jellies, gelatinous food in general; various preparations of rice and flour, eggs, buttermilk; oysters have been also highly recommended, and may occasionally vary the diet of phthisical patients. No distinct rules can be laid down: our object is to furnish the patient, at the least possible expense of his organs, studiously avoiding everything which stimulates the circulation and induces that state of the system which would be favourable to tubercular softening. It is evident that in particular circumstances both these indications may be fulfilled by diet of a very opposite description, and little more can be said, than that in proportion as the symptoms are acute, and the constitution plethoric and irritable, must the diet be mild and scanty. In the more advanced stages of the disease the condition of the digestive organs must be our principal criterion for the quality and quantity of ingesta.

Attention to *clothing* is very important. It should be warm in proportion to the debility of the patient, and the temperature to which he is exposed. Flannel, and where this excites too great irritation, leather should be worn next the skin. The feet should be warmly and securely defended, and females should never expose their arms or chest to the air, or vary the warmth of their dress at particular hours of the day. *Too much clothing* must be equally avoided, particularly where there is much tendency to perspiration, and at night it may in general be advisable to substitute calico for flannel, as recommended by Dr. Barlow.

Exercise in the open air should be regarded as one of the most essential curative measures, and must not be relinquished, as is too often the case, from the dread of taking cold; our best security against this complication, consists in regular and habitual contact with the atmospheric changes around us. By proper clothing, and avoiding extremes of temperature, incipient cases of phthisis may be advantageously exposed to the open air. All violent exertion, whatever tends to accelerate the circulation, and excessive fatigue, should be avoided. On few subjects could such multiplied evidence be adduced, as on the benefit resulting from *horse exercise* in phthisis. The practical Sydenham placed his chief reliance upon it, and recommends journies of some months undertaken in this way. The patient, he says, should almost live on horseback, and attention to this injunction, he thinks of greater importance than rules of diet. Dr. Rush is equally convinced of the efficacy of horse exercise, and mentions his having cured several who were labouring under the symptoms of confirmed phthisis, by advising them to become postmen. Russell, Marryat, Morgagni, Mosely, Beddoes, and more recently Drs. Graves and Stokes, all agree in its occasional efficacy, when sufficiently persevered in. Stoll has remarked that it is injurious, and Dr. Dickson has advised its discontinuance when hectic symptoms are present. No doubt like all other remedies, it requires discrimination ; in the more advanced stages of the disease, and indeed whenever great weakness and emaciation are present, it would probably be injurious, and may then be advantageously replaced by carriage exercise, which is frequently the only plan in our power to adopt. The patient, says Dr. Graves, should be at least from four to five hours a day in the open air. Vanswieten was in the habit of recommending his patients to turn coachmen.

On the efficacy of *swinging*, there is some contradictory evidence, but from the testimony of Dr. Currie, who tried it in his own case, and that of Dr. Carmichael Smyth, who wrote expressly on this subject, with the more casual remarks of

Themison, Desault, and Southey, we may safely conclude that where it agrees it may occasionally be useful. It has a decided tendency to increase the circulation in the extremities and surface generally, and perhaps to lower the pulse, though this is contested; with children who are naturally fond of the exercise, it would be more peculiarly applicable.

Travelling may be safely recommended under certain circumstances; its influence upon the mind, the choice of climate which it affords, the habitual exposure to the air, are amongst some of its advantages. It is in the early stages of the disease only, and more especially where the symptoms are chronic, that benefit may be expected. The circumstances of the patient must admit of every comfort, and minute attention paid to other means by which the general health may be improved. There is nothing specific in its influence, and unless enjoined with due regard to the condition of the patient, will frequently only hasten the disease.

In those cases where the symptoms are more acute, the constitution irritable, the mucous membranes relaxed, the cutaneous functions impeded, and there is much tendency to hæmorrhage. *Sea voyages* have been almost universally recommended in preference to travelling. In connection with the voluminous evidence we possess in favour of vomiting in the early stages of phthisis, the influence of moisture, the advantages of an equable temperature, the benefit of being much in the open air, the purity of the atmosphere, the robust state of health among those accustomed to a sea life, there is every reason to suppose, that when judiciously recommended, sea voyages are among our most powerful means of arresting incipient cases of consumption; and merit still greater confidence in the removal of that state of constitution which predisposes to tubercular deposition. Sailing or cruising for some time would probably be more advisable than a long voyage, particularly if the patient has derived benefit from the sickness; and in those cases where change of climate is recommended and much improvement has taken place during the voyage, it would be better to repeat the latter, than hazard the doubtful benefit of a residence on land. The Atlantic is considered on the whole as a much more favourable climate than the Mediterranean, though this fact is not satisfactorily decided, and during the winter, perhaps voyages between Madeira and the West Indies would be among the most favourable. We are inclined however to think that voyages round our own coasts, and repeated at short intervals, would at least in the incipient cases, be equally useful and might certainly be tried by a far greater number of invalids. We can do little more than submit the subject to the practitioner's attention, referring him to the works of Reid, Fothergill, Gilchrist, Clarke, &c. for more detailed information.

The real influence of *climate* on consumption, is beginning to be far more correctly appreciated, and greater discrimination shown in the selection of those cases where change of climate is recommended. It has been too often considered as a last resource, rather than a means the efficacy of which depended on its early application; and in the immense majority of cases which annually leave England for the advantages of a warmer temperature, all favourable results are not only impossible on account of the advanced stage of the disease, but the progress of the affection is frequently hastened. When ulceration has taken place, and the general symptoms indicate a fatal termination, removal to a *hot* climate may be regarded as decidedly injurious, experience having proved that under these circumstances the progress of phthisis is more rapid. It is in the incipient stage of the complaint, where the scrophulous diathesis prevails, where the progress of the disease is chronic, and the general symptoms not predominant, that the beneficial effects of climate may be expected. The action of a warm climate on the healthy frame, in exciting the functions of the skin and liver and diminishing those of the lungs, explains some of the advantages to be expected in pulmonary affections. The benefit of exercise in the open air, also points out that our selection should be guided by other than thermometrical considerations, and while a mountainous country like Madeira Tiludes the facility of easy change of temperature by change five 'evation, yet where horse or carriage exercise is important, of rec level and extensive country is preferable. A mild and

On timate ought to be preferred, and there are many situa-evidence,'e south and western coasts of England, which may be his own cawith advantage. It has been thought that change of expressly on effectual ought to be *complete*, and with this view the East or West Indies, South Carolina, Florida, the Northern States of South America, and more particularly *Egypt*, have been proposed. We can offer no decided opinion upon the subject; there is every probability that in some cases, such a change would be beneficial, but the liability to other diseases must not be forgotten, and an accurate appreciation of the health and constitutional peculiarities of the patient is more peculiarly necessary. In very chronic cases there can be little doubt that life may sometimes be prolonged several years by residence in an equable mild climate. As a general principle, it may be safely admitted, that the change from a variable temperature to one of an opposite description, when not involving any serious diminution of the patient's comforts is always advantageous; and where circumstances render removal impossible, confinement to apartments of which the heat is regulated and the purity of the air as much as possible preserved during the more rigorous weather of this climate, may be judiciously recommended, and indeed is often our only resource. It must however be recollected that this mode of treatment being unfavourable to improvement of the general health, should only be enforced when exposure to the air is constantly attended with increase of the symptoms. It is principally adapted to very delicate persons, especially females, to those advanced in life, and to the latter stages of the disease. We must refer the reader to Dr. Clarke's elaborate work, it is impossible at the present moment to do more than direct his attention to the subject.

Much difference of opinion exists on the relative advantages attending a residence on the coast or inland for consumptive patients. It is not in our power to answer the question. It would be easy to prove how imperfectly the subject has been studied; but we are inclined to think, from a review of the causes of phthisis, that when due attention is paid to temperature, exposure, and other local considerations, that the sea coast on the whole is preferable.

Emetics.—Though frequently prescribed to fulfil temporary indications, they may with great propriety be classed among the remedies employed in the general treatment of phthisis. It would be easy to extend this article to considerable length, by the simple enumeration of the names of those who have written in favour of the use of emetics in a variety of diseases, and as Dr. Young says, it is remarkable that a very great majority of the cures of consumption related by different authors, have either been performed by emetics, or by decidedly nauseating remedies. Their systematic employment has been more particularly recommended by Drs. Morton, Parr, T. Robinson, Marryat, and Reid. The latter especially, has brought forward a variety of valuable evidence in favour of the practice. Many subsequent authors have repeated the treatment he proposed and confirmed his encomiums on the benefits of vomiting in phthisis. It is evident to the most casual observer, that the effects of vomiting are general, and not confined to the stomach. The mechanical pressure upon the abdominal and thoracic viscera, the influence upon the arterial and veinous circulations, the effects upon the nervous system, and the subsequent diaphoresis, all point out that the action of vomiting is general and complicated; and, associated with the benefits resulting from sea voyages, swimming, &c. there is every reason to believe that the use of emetics in incipient cases of phthisis is satisfactorily demonstrated. The presence of gastritis, inflammatory or congestive head symptoms, hernia, pregnancy, &c. of course contra-indicate their use. From what we know of the effects of protracted sea sickness, and the history of cases where emetics have been continued several months, there is no reason to suppose that their continued employment is either necessarily or generally injurious to the stomach.

The tartar emetic, ipecacuanha, sulphate of zinc, and sulphate of copper, either singly or combined, have been usually employed. When a simple tonic and derivative effect is desired, the sulphate of zinc alone, or in solution with alum as Dr. Mosely recommends, should be preferred, (sul. zin. ʒiij.; alum, ʒj.; aq. Oj.) but in proportion as we wish to allay febrile symptoms, the tartar emetic and ipecacuanha, in conjunction or singly, are most effectual. Violent and continued vomiting must be avoided; the smallest doses, as a general rule, are best, and we most particularly guard against exciting *diarrhœa.* The morning has been generally considered the best time for their administration, though when rigors come on at any particular period of the day, the well known action of an emetic in the cold stage of intermittent fever, would render their trial at this period advisable. When repeated at night they have allayed the hectic symptoms, and promoted sleep. Their administration requires discrimination, and they should only be persisted in when their effects are evidently favourable. Dr. Marryat in his "Therapeutics," prescribes one grain of tartar emetic with three of ipecacuanha, to be taken two or three times a week in the morning, fasting. Mr. Adair (Vide *Med. Comm.* vol. xviii., p. 473. 1791), orders a grain of the sulphate of copper, with a drop of sulphuric acid, in half an ounce of water, to be preceded by a pint of warm water, and repeated three alternate evenings, and afterwards daily, every morning. Dr. Senter (*Trans. Coll. Phys.* vol. i. Philad. 1793), gives a dry vomit of from seven to ten grains of sulphate of copper and ipecacuanha, to be taken fasting every second or third morning. Dr. Reid found that five grains of ipecacuanha was sufficient to begin with. The preparations of emetine might be tried, particularly with children. We shall conclude our remarks on emetics by observing that their therapeutical employment in phthisis, and their influence on the health generally, are considerations of great interest and importance.*

It may we think be safely advanced as a general principle in the treatment of disease, and more particularly of constitutional disease, that our measures should be principally directed to those organs and tissues of the body, which are least liable to be involved in the natural progress of the affection; and consequently, in the treatment of phthisis, we should not attempt its cure by acting on the digestive mucous membranes, but on the cutaneous and urinary organs which are so seldom organically affected.

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* We are gratified to find that our conclusions on the importance of emetics are confirmed by Dr. Clarke in his admirable section on this subject. (Vide *Cycl. Pract. Med.* Part xxiii., p. 342.) That distinguished writer coinciding with Dr. Carswell's ingenious views, relative to the cause of the peculiar locality of tubercular deposition in the lungs and elsewhere (Vide Article "Tubercle") says, "we can easily conceive how the repeated action of emetics may prevent the deposition, or at least the accumulation of tuberculous matter in the bronchial ramifications and air-cells, and thus prevent the *localization* of the disease, and give time for the correction of the constitutional disorder. In this manner, it is not improbable that a judicious use of emetics may prove a powerful means of preventing the deposition of tuberculous matter in the lungs." The same author refers to the powerful and recent evidence of Dr. Giovanni de Vittis, in favour of the use of emetics in phthisis and chronic catarrh. Vide *Annali Universali di Medicina.* Decembre, 1832.

The use of *baths* in a variety of forms with dry or moist and stimulating frictions on the skin, are almost invariably included in the treatment prescribed by different authors. The mutual influence of the pulmonary and cutaneous functions is sufficiently established, and the importance of the latter too evident to need illustration. Dr. Armstrong, in his valuable essay on consumption (p. 213), says, "If we go more minutely into this subject, we shall find that many diseases of the skin are incompatible with those of the lungs; hence, in Great Britain, those persons afflicted with cutaneous eruptions, are the least exposed to pulmonary consumption: but let their cutaneous disease be incautiously cured, and they often fall victims to suppuration in the lungs, as I well know from personal observation." "I have seen," says the same author, "coughs of a phthisical tendency disappear on the coming out of a spontaneous eruption of the skin; and I have seen a similar effect from pimples artificially induced on the surface by irritating ungent; the connexion between phthisis and the skin appears to me a subject of vast importance in a practical and pathological point of view."

In the treatise of the late Dr. Kentish on the employment of baths, there are some striking cases of severe pulmonary affections successfully treated by the common vapour or sulphur vapour bath. In one example of apparent phthisis the latter was taken every other day during four months with ultimate success and gradual increase of the general strength. To be effectual, baths must be persevered in, and much care taken by the use of diluents, friction, and exercise, to avoid their injurious effects. The temperature should be regulated, and the stimulating nature of the bath adapted to the peculiarities of the patient's constitution. In scrophulous and chronic cases, much benefit may be expected from this mode of treatment, and in opposite circumstances their judicious employment will at least prove a valuable palliative remedy. The hot air bath proposed, in 1819, by Dr. Gower, and since modified, is powerfully diaphoretic and a convenient application.

Counter irritation in the treatment of phthisis, has the testimony of almost every ancient and modern author in its favour.

The theory of its action is far less important than the inquiry if experience has satisfactorily demonstrated its utility; all we can say is, that there are few subjects in therapeutics, on which so little discordance of opinion has existed. Every gradation of irritation from simple rubefaction to the actual cantery has been recommended, and evidence in favour of all has been adduced. The revulsive treatment so much insisted upon by the ancients, seems reviving in modern practice. In its application to phthisis, we may admit, as a general rule, that it should be avoided when much febrile excitement is present, or at least be deferred until this has been subdued. It should be proportionably deep and permanent in its character as the disease is chronic, and the lymphatic temperament predominates, and whenever it produces great general irritation, pain, loss of sleep, &c. its mode of application should be varied, or if this is insufficient, it must be wholly relinquished. With attention to these general principles, it may be regarded as eminently useful in all chronic thoracic affections; when supported by the patient, it should never be omitted in the treatment of phthisis, though in all acute cases it must follow the use of antiphlogistic measures. A variety of stimulating lotions, containing vinegar, alcohol, and ammonia, have been proposed by Drs. Scudamore, Hall, and others, and perhaps may be always safely recommended with some slight modifications as to temperature. They increase the circulation on the surface of the chest, and render the skin less easily affected by atmospheric changes. They are generally advised to be used in the morning, and repeated once or twice during the day. Dr. Hall recommends the more powerful and permanent action of a pad steeped in alcohol. Blisters either frequently repeated or caused to suppurate are among the most general means resorted to for counter irritation. They may perhaps be regarded as best adapted for incipient threatening cases, and for the treatment of those incidental complications so frequently occurring during the progress of the principal affection. They may also be occasionally conjoined with the use of setons, issues, tartar emetic ointment, or other means by which a suppurative process is established. As our object in the employment of blisters in phthisis is local irritation, and the avoidance of any general reaction always desirable, Dr. Thompson (Vide *Mat. Med.* t. ii., p. 548), says, this may be effected by moistening the skin with water, and passing a piece of nitrate of silver lightly over it, so as to include the whole of the moistened surface. The action is rapid, effectual, and purely local. Dr. T. strongly recommends it where much febrile excitement and constitutional irritability are to be dreaded. Intense pain and slough result from an excess of the nitrate of silver. Dr. Scudamore with the same intention, speaks highly of a saturated infusion of cantharides in strong acetic acid, applied to the skin by means of a camel's hair brush.

The tartar emetic ointment, or a strong solution of this salt (Thompson) applied hot to the previously frictioned skin, either alone, or in severe cases, conjointly with setons or issues under the clavicles or between the shoulders, may be regarded as the least painful, and most effectual means of counter irritation. Croton oil, ammonia, and a variety of irritating liniments may be occasionally useful; the action of the former is mild and easily supported.

In proportion as humoral pathology prevailed, our derivative measures receded from the disease they were intended to remove; at present however, it is generally admitted, that it is better to apply our remedies as near as possible to the affected organ, and the sub-clavicular regions are considered the best points for establishing permanent counter irritation. Dr. Graves invariably places two setons beneath the clavicle in all incipient cases, and advises their employment at the age of puberty, whenever phthisis may be apprehended. It may perhaps be useful to let old wounds occasionally heal and form new ones, for it is probable they become less effectual after the constitution is habituated to their presence.

Bleeding.—"Super omnia verò venesectione, eâque satis tempestive, frequenter, et copiosé adhibitâ, ut malicentus, et tabidus fuerit æger," says Morton, and perhaps there are few diseases in which bleeding has been more generally prescribed, or more frequently repeated. The buffy appearance of the blood so usual in phthisis, has been erroneously considered as a justifying indication for the use of the lancet; in the present state of our knowledge, this symptom alone is quite insufficient, since we well know that mercury, pregnancy, exercise, &c. are capable of producing this peculiar condition of the circulating fluid. It has we think been demonstrated in the course of this volume, that phthisis, in its origin or causes, is not an inflammatory disease; and, that in all its subsequent stages, inflammation is usually the *result* of tubercular deposition, or in those cases where it precedes the latter, an accidental complication which hastens its development. These are not to be regarded as theoretical views, but the ultimate expression of numerous and analysed facts; on their reception or rejection, will the practitioner's reliance on the efficacy of bleeding, as part of the general treatment of phthisis, materially depend. It must not be supposed that antiphlogistics are to be excluded from the therapeutics of consumption; if inflammation is not a cause, it is a very frequent complication, and adopting means for its prevention and removal, forms a leading indication in the treatment of this affection. To protect the individual and the affected organ from the influence of all those agents, internal and external, which tend to create an inordinate degree of excitement, or favour the development of active congestion, may be regarded as one of the most important practical rules. It is the opinion which regards inflammation as the source of all the evil, and considers the removal of it as the only, or principal means of preventing the progress of the disease that we are now combating.

After reflecting on the pathology of phthisis, its nature, its causes, and the general character of the remedies which have been most successful in its cure or palliation, and after having compared the conflicting evidence of a variety of authors on this subject, we think that bleeding should be regulated by precisely the same principles in consumption, as in any other disease, and ought never to be practised without the presence of those indications which guide us in the employment of venesection in general. The practitioner should never forget the chronic nature of the disease, the impossibility of curing it rapidly, the subsequent debility, and the importance of being governed in the abstraction of blood, by the state of the digestive organs. It is more particularly in the early stages when the heat, pulse, cough, and dyspnœa indicate inflammatory action, that bleeding will be useful, and may occasionally be repeated with advantage. Small revulsive bleedings of a few ounces will often afford relief to the thoracic and hectic symptoms. The application of leeches under the clavicles has been recently recommended in the early stages of the complaint: of their real efficacy we are unable to speak with certainty; we have seen them tried by M. Louis without any evident success. Local bleeding in the form of cupping, is also frequently indicated against the intercurrent inflammatory complications. Were we to choose between the indiscriminate use of the lancet or its rejection in phthisis, we believe the latter would be less prejudicial.

Stahl, Dover, Vanswieten, Watt, and Stoll, are among the most strenuous advocates of general and repeated bleedings. They are objected to by Marryat, Heberden, Reid, and others.

Mercurials.—In the supposed analogy between phthisis and scrophula, and in the doctrines of hepatic and syphilitic consumptions, we may trace the reason of the frequent employment of mercury. It has been more particularly recommended for the cure of phthisis by Drs. Rush, Stewart, and Physic, who have strongly advocated the tonic treatment in conjunction with salivation. Mr. Watt, in his cases of diabetes and consumption, published in 1808, also advises salivation after the singular preliminary treatment of repeated bleedings to induce febrile reaction; his avowed object was to modify the blood. By the majority of authors, its use has been confined to particular indications occurring in the earlier stages of the disease, to scrophulous habits, to cases of mesenteric affection, hepatic obstructions, and its action as a mild purgative. The greater number of modern authors regard its habitual administration in phthisis as decidedly injurious. From what we know of its general action upon the frame, the irritable state of the nervous system which it induces, the increased susceptibility to external influences, the febrile excitement, and the necessary interruption to other indications, there seems no reason to call in question the propriety of this opinion as a general rule; and if in the use of mercurials, we include the production of its ordinary constitutional effects, there is still greater reason to erase it from the list of therapeutics for phthisis. We are however inclined to believe that its good and bad effects have been greatly exaggerated, the former being frequently founded on erroneous diagnosis, the latter on its abuse.

There can be no doubt that in scrophulous phlegmatic habits, and in various derangements of the digestive tube, that it forms one of our most valuable remedies, and the researches of Dr. W. Philip on the employment of small doses of mercury, exhibit the action of this agent in a new light, and prove that we have hitherto been ignorant of the means by which its real efficacy in chronic diseases may be obtained, and its injurious effects avoided.

The evidence relative to the influence of mercurial vapours is too contradictory to allow of any positive conclusion, and the arguments against the use of mercury, founded upon the experiments of Dr. Clayton, in 1694; Dr. Saunders, in 1793, and more recently those of M. Cruveilher, consisting in the injection of mercury into the veins of dogs, and the apparent production of tubercles in the lungs, cannot be admitted as of any value, since there is no doubt that in all these instances the mercury was simply deposited in the pulmonary tissue, where it produced suppuration like any other foreign body.

The expressed juice or extract of taraxacum has been favourably mentioned as an alterative in tuberculous constitutions, by Hufeland, Zimmermann, Kaemp, and its utility is acknowledged by modern practitioners.

The sarsaparilla, the muriate of lime and of baryta, and more especially the mineral waters, are also deserving of increased attention.

Digitalis.—Since its diuretic powers were so successfully demonstrated by Dr. Withering, in 1785, digitalis has been alternately extolled as a cure, or condemned as injurious in the treatment of phthisis. Reid thinks it a stimulant; Saunders, a tonic; Dr. Hamilton, a direct sedative; Kinglake, a narcotic stimulant; Magennis, that it acts by extinction of morbid action; Beddoes, that its efficacy in consumption is equal to that of bark in intermittents, &c. &c.; from all these satisfactory conclusions, the reader may infer, that it really *has* some active properties, and that its action varies with the circumstances under which it is administered. It is now very rationally almost entirely rejected as a cure for consumption, and merits only to be regarded as one of the many means occasionally useful in this disease, and which may sometimes assist the operation of more important measures. It seems principally adapted to phlegmatic habits, after depletion, and especially where there is any anasarcous tendency. The state of the digestive tube must be previously ascertained, and from its effects accumulating it requires to be very closely watched.

Prussic Acid.—This has quite as little claims to be regarded as a specific for phthisis as the former. Its action is more undoubtedly sedative, and it may be often prescribed with advantage against the cough, particularly in the early stages, when the system is irritable and any spasmodic symptoms are present. It may be considered as more adapted to hectic than digitalis, and often tends to allay sickness, epigastric pain, and pyrosis. Dr. Thompson speaks highly of its use in laryngeal affections, and in phthisis it may be regarded as a useful palliative remedy.

The discovery of any means by which a sedative influence might be procured, and the cough moderated, without any injurious secondary effects resulting, would be a valuable addition to the therapeutics of phthisis. Dr. Rollo recommended the hepatized or hydro-sulphuret of ammonia, on a theory of its chemical action. It has since been mentioned by Dr. Armstrong, and more recently by Dr. Newton, in the second number of the *Dublin Medical Journal.* The latter gentleman, in conjunction with Dr. Marsh, found that it lowered the pulse, increased the appetite, promoted the urinary secretion, and acted powerfully on the skin. These properties give it claims to the practitioner's attention as a palliative remedy for phthisis, and we hope some judicious trial of its real efficacy will be made. The dose mentioned is, three drops three times a day, in a tumbler of water. We may gradually increase this quantity to thirty or forty drops. Nausea, headache, and vertigo result from an overdose.

From what we know of the action of *alkalies* upon the system, their solvent power, and general adaptation to febrile symptoms, at least in the earlier stages of disease, there is every inducement to continue our investigations on the subject, and we think their application to phthisis, on these and other grounds, well worth the practitioner's attention. We have no facts to bring forward, and shall therefore refer the reader to Dr. Burrows' very interesting and talented lectures, published in the *Medical Gazette*, p. 711. 1834.

Iodine has not, we think, received the attention it deserves as a remedy in phthisis. Its well known action in scrophula, gôitre, visceral engorgements (particularly those of the liver), demonstrate its powerful influence upon the absorbent system; and the evidence of Drs. Baron, Gairdner, and others, on its employment in consumption, amply justify our advising its continued trial in this disease. It is almost unnecessary to remark, that so active a remedy requires great care and discrimination, but from the statements of M. Zinck, of Lausanne. (Vide *Journal Complementaire*, April and May, 1824), it is probable that its injurious effects have been exaggerated. Its association with soda in the blood makes Dr. Burrows suppose it possesses a solvent power. Scrophulous phlegmatic habits, the absence of febrile excitement, and a healthy state of the digestive tube are the most favourable conditions for its administration. Its influence upon the stomach may be avoided, by prescribing it in the form of inhalation to which we shall presently refer. Its diuretic and emmenagogue powers give it additional claims to our notice. Some objections to its employment in phthisis have been advanced by Laennec, M. M. Laennec, and Récamier (Vide *Rēvue Med.* June, 1825), they only prove, what our knowledge of the drug would at once indicate to every judicious practitioner, that it is not universally applicable.*

Bark.—This has also enjoyed the reputation of possessing specific properties in the cure of phthisis. The opinion has been principally supported by Morton, De Metternich, and Sedillot, while by other authors it has only been prescribed to answer particular indications. Mead advises it before, and Heberden after ulceration has taken place; Dickson limits it to hæmoptysis; Fothergill to the latter stages of the disease; and Bayle seems to regard it solely as an anti-periodic. A variety of evidence is in short adduced in favour of equally variable opinions; we may therefore conclude that bark must be prescribed on the same general principles which indicate its employment in other chronic diseases, and that it has no claims to the character of a specific for phthisis. The combination of bark and steel, bark and sulphur, as advised by Drs. Trotter and Sims in scrophulous cases, seems to have been very successful.

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* In a recent work by Dr. Morton, of Philadelphia, entitled, *Illustrations of Pulmonary Consumption*, &c. the efficacy of iodine in phthisis is supported upon an extensive practical observation of its effects. He prescribes the iodine in the form of a solution containing three grains of iodine, and six grains of hydryodate of potash in an ounce of distilled water, from three to five drops of which are given every morning, noon, and night. We have not ourselves seen the work, but quote from Dr. Clarke's notice respecting it.

The partiality displayed by authors to particular remedies renders the opinion of any single individual of comparatively little importance, but by comparing the treatment pursued by numerous practitioners under similar circumstances, we can occasionally discover some point on which they are more or less unanimous, and thus increase the probabilities in favour of the efficacy of any particular remedy. One of the most popular, as applicable to phthisis and chest affections generally, is *sulphur.* Its virtues are highly extolled by Galen, Sylvius, Willis, Lieutand, Sydenham, Stahl, Hoffman, and many others, and from its special and powerful action in the cutaneous surface, its internal use, in a disease like phthisis, has perhaps been too much neglected. As a remedy for costiveness in this affection, it is worthy of notice, and might perhaps be advantageously employed against profuse perspirations. Its forming a constituent portion of the nervous system, and its general absorption when taken internally, proved by its presence in the perspiration, &c. are sufficient reasons to make us suppose that it may at least be occasionally useful. Its most effectual exhibition is probably in the form of mineral waters. Of the utility of its external application there can be no doubt, and in the form of inhalation it is far from being inert.

A variety of other remedies, such as myrrh, iron, preparations of lead, &c. have been favourably mentioned in connexion with consumption, but since they have not been regarded as peculiarly applicable to this disease, we think it quite unnecessary to refer to them.

We shall now make a few remarks on the *local* remedies which have been proposed, and direct the reader's attention to the method of *fumigation* or *inhalation.* The application of medicated vapours to thoracic affections, may be traced back as far as the writing of Galen, who speaks highly of the vapours from experiment. These were also recommended by Rhazes (an Arabian physician), and Bennet, who prescribed them in conjunction with some of the balsamic remedies. The latter writer, especially, has insisted upon the use of fumigations, invented an apparatus for their administration, and was also in the habit of employing the vapours from a variety of infused herbs. Dr. Pearson and others have spoken of the utility of æther, and the former prescribed the inhalation of narcotic vapours, arising from the maceration of a ℈j., ʒj., of the leaves of hyoscyamus in ℥j. of æther. Dr. Mead, who does not appear himself to have pursued the treatment, thinks the fumigations, as described by Bennet, were too much neglected.

It will be easily gathered from these slight references, that the methods proposed by more recent authors, have no other claims to novelty than the use of agents with which our predecessors were unacquainted. Their real value is not however on this account diminished, and after an examination of the works of Gannal,* Murray,† Scudamore,‡ and Cottereau,§ we do not hesitate to say, that the evidence in favour of the palliative effects of chlorine and iodine in phthisis, is amply sufficient to encourage others in the application of these remedies. The cases related by M. Cottereau are by far the most satisfactory; we would refer to the first, also published by Gannal, and to the twelfth, as particularly striking and decisive as to the existence of pulmonary tubercles. Sir C. Scudamore insists strongly on the power of iodine in facilitating expectoration, diminishing cough, and promoting sleep and appetite. Dr. Thompson, in his *Mat. Med.*, speaks very favourably of the palliative action of chlorine in phthisis. All his trials were upon advanced cases; though not ultimately successful, it invariably gave relief, and, as he expresses himself, may be said to have scattered flowers on the borders of the grave. It is but fair to state, that Dr. Stokes, of Dublin, M. A. Laennec, of Nantes, M. Joulmouche, of Rennes, and M. M. Flandin and Miquel, of Paris, have administered chlorine inhalations without success, and occasionally have found them injurious. The utility of these and other vapours of the narcotic class, as particularly recommended by Dr. Scudamore in chronic bronchitis and various other affections included under the general term asthma, is more satisfactorily demonstrated, and may tend to point out those cases of consumption where peculiar benefit may be expected from their employment. Whatever may be the result with regard to their sanative influence in this disease, they may be considered as forming valuable adjuncts to the therapeutics of thoracic affections. How far their beneficial effects are depending on their local action, is rather difficult to determine; but from the absorbing power of the bronchial membrane, and the active nature of the agents employed, it is more than probable, that much may be ascribed to their general influence, which has the advantage of being produced without injury to the gastric mucous membrane.

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* Two Memoirs on the Inhalations of Chlorine, &c. Translated by W. H. Potter, M.R.I. 8vo. London, 1830.

† *Inhalation of Iodine, &c.* J. Murray, M.D. London, 1829.

‡ *Inhalation in Pulmonary Consumption, &c.* By Sir C. Scudamore, M.D., F.R.S. 8vo. London.

§ *Mémoire,* by Cottereau—*Arch. Gen. de Med.* Nov. 1830.

The vapours of boiling tar have been highly extolled by Dr. Crichton and others. The experience of Dr. Forbes leads to a less favourable conclusion; but Dr. Morton, in the work already alluded to, says, that among the various substances which he has tried, there is no one which he has prescribed with equal success to tar. In chronic catarrh he knows of no plan of treatment that can vie with this. (Vide *Op. Cit.*, p. 348.) Sulphurous fumes have also been recommended, as well as diffusing a variety of vapours in the apartment of the patient; on their beneficial or injurious effects we are unable to speak.

We cannot close these remarks, without insisting upon the necessity of strict attention to accuracy of diagnosis and clear discrimination of the peculiar circumstances under which our remedies are applied. Without this our facts cannot be available to others, and from want of attention to these important data, by far the greater portion of the details to which we have alluded is utterly incapable of leading to any positive results. The difficulty of the inquiry is immense, and much caution must be shown in arriving at general conclusions; on the other hand, the hopelessness of the disease, the inefficiency of every known treatment, fully justify experiments in search of a new remedy, and it is not irrational to suppose that so great a desideratum may be found in a class of substances which, while they exert a general influence upon the health, are capable of being directly applied to the diseased organ.

After thus expressing our convictions, we leave the subject to the judgment of the reader and to the decision of future investigation; we shall now briefly advert to the *pneumatic method.* This is evidently but a varied application of the preceding, and includes the inspiration of oxygen, hydrogen, carburetted hydrogen, and other gases. Fourcroy (in the *Annales de Chimie.* No. 4. Paris, 1790) gives the result of the inspiration of oxygen in twenty cases; in all it was prejudicial, hastening the progress of the disease, and increasing the febrile symptoms. Beddoes tried the effect upon himself; it occasioned true hectic, emaciation, dry cough and dyspnœa. Increased excitement is also the effect on animals, and neither theoretically or practically is there any inducement to renew our experiments.

The use of hydrogen, carburetted hydrogen and carbonic acid, has been attended with much greater success. Beddoes relates some cases which were greatly relieved by breathing a mixture of hydrogen and common air. In another instance, mentioned by Dr. Crowther, the employment of the carburetted hydrogen in the proportion of 1 part to 24 of air, was also useful. Dr. Percival, in his Essays, 1774, found the inspiration of carbonic acid, in thirty cases, palliate the febrile symptoms. This result is confirmed by the investigations of Drs. Withering and Hulme. Dr. Home, of Edinburgh, says, that carbonic acid is useful in allaying fever, and an impure atmosphere is recommended by Darwin against hectic. It is also probable that the favourable effects which appear sometimes to have resulted from a residence in cow-houses, may in part be ascribed to the same cause. Connecting with these details, the fact, that miners seem little liable to phthisis, and recollecting the opinion of Dr. Wells and others, in favour of marshy places in consumptive cases, there is sufficient evidence to justify some confidence in the palliative efficacy of these gases. The subject is deserving of attention, and will be viewed with additional interest, when we reflect on those symptoms which indicate an active state of the respiratory functions in phthisis, viz. increased heat, florid colour of the skin, and mucous membranes, and compare them with the physical condition of the lungs. The absence of constant dyspnœa and the complete oxygenation of the blood are remarkable physiological facts in many examples of this affection. Is it depending on the circulation of oxygen in the venous as well as the arterial blood, on account of the diminished production of carbonic acid, arising from impeded nutrition?

Treatment of the more Prominent Symptoms of Phthisis.

Under this division we shall include, hæmoptysis, hectic perspirations, cough, and diarrhœa.

Hæmoptysis.—The diagnostic value and importance of this symptom has already been fully insisted upon. We can scarcely be said to possess any curative means against hæmoptysis; they are rather preservative and palliative. No precise rules for their administration can be laid down; the constitution of the patient, the stage of the disease, and the more immediate cause of the hæmorrhage, when such can be traced, require numerous modifications in the treatment. We must also recollect that it is very seldom fatal in its immediate effects, and would in general cease, independently of treatment; we must therefore be backward in attributing too much efficacy to particular remedies. The means most generally prescribed under these circumstances, consist in rest in the horizontal posture, cool air, cold applications to the chest and scrotum, or between the shoulders, with warmth to the extremities, bleeding, nauseants, purgatives, sedatives and astringents. It is important to remember that we are treating a symptom only, and not a disease; this must regulate the activity of our measures, and prevent our indiscriminately resorting to powerful antiphlogistics; though from the experience of Dr. Cheyne and others, there is every reason to suppose, that when symptoms of pulmonary congestion and increased circulation are present, small and repeated bleedings are among our most effectual remedies. In the majority of cases, rest, with cool air, sponging the chest with vinegar and water, the application of warmth to the extremities, and saline laxatives, will be sufficient. When the symptoms persist, nauseants, with sedatives, such as digitalis and Prussic acid may be tried. The former especially have been highly spoken of by Aasheim, Piso, Baglivi, Murray, and more recently by Dr. Graves, of Dublin, who also corroborates the opinion of the preceding authors on the utility of small doses of ipecacuanha in this and other hæmorrhages. Dr. Graves prescribes two grains every quarter of an hour until some improvement is observed, and afterwards every half hour until the flow of blood ceases. He precedes the ipecacuanha by a purgative injection and a saline purge. This treatment he has almost invariably found successful. Dr. Cheyne thinks that in all cases where inflammatory symptoms are present, that a combination of antimony and nitre, frequently repeated, is one of the most efficient remedies. Emetics have been strongly advised by Robinson, Marryat, Reid, Stoll, Dr. Parr, and others, and from statements of these writers, there can be no doubt that the danger to be apprehended from their use has been greatly exaggerated. The action of vomiting on the pulmonary circulation is not so easily determined. The venous congestion of the head and upper extremities, and the probable repetition of this state in the lower, from the contraction of the abdominal parietes, combined with the diminished action of the heart and the subsequent rapid diaphoresis, lead us to conclude that it is not attended with danger in hæmorrhage of the lungs. The effects of sea sickness and the relief which vomiting affords to dyspnœa, arising from a congested state of the heart and lungs, is not compatible with the idea of any increase of blood in those organs. Perhaps since the principal advantages of nauseants or emetics arise from their action on the heart and their tendency to equalize the circulation, the former should generally be preferred.

A tea-spoonful of common salt, swallowed dry or dissolved in water, has been successful in the hands of Le Meza, Rush and others, and from its being easily procured, is worth remembering. Dr. Carmichael Smyth speaks highly of the efficacy of the extract of hyoscyamus. Opium is not admissible until after depletion. Sulphuric acid, vinegar, acetate of lead, ratanhia and other astringents, may be occasionally useful. Cold water and small pieces of ice taken internally are valuable adjuncts in acute and incipient cases. Ligatures to the limbs are too painful to be applied, unless the quantity of blood renders the danger imminent. Dry cupping has been recently recommended, particularly where depletory measures are contra-indicated, and in the more advanced stages in these and other circumstances, it may be advantageously employed. In the treatment of hæmoptysis the state of the liver and bowels should be particularly attended to.

Hectic Fever.—This is evidently not confined to the latter stage of the disease, neither does it depend, as M. Broussais has argued, on the absorption of pus from tubercular abscesses, nor does it always correspond to the extent of pulmonary disorganization. The fact, that secondary alterations are proportionate in number and importance to the violence and duration of febrile movement, points out the necessity of diminishing, as much as possible, vascular excitement; never forgetting the natural tendency of the disease, and avoiding the use of means calculated to hasten the development of those secondary symptoms, which so powerfully influence the progress and accelerate the termination of phthisis.

In the treatment of hectic we should rather confide in attention to general measures, such as diet, clothing, early rising, ventilation, tepid sponging, warm bath, &c. than in the administration of medicine. In acute and incipient cases more active means may occasionally be advisable, and it is here that small bleedings have been principally of service. Small doses of tartarized antimony and saline medicines may be successfully employed under the same circumstances.

Since hectic fever has been regarded as an attendant upon rather than an essential disease, specific remedies have diminished both in number and value, and against a symptom associated with such a variable state of the general health, means of the most opposite description may be occasionally successful. Poterius was in the habit of prescribing a preparation which was long regarded as a valuable anti-hectic. It consisted of one part of tin, one of metallic antimony, deflagrated with six of nitre. Other writers seem to have found it useful. Reid advises a powder containing fifteen grains of nitre and one of tartar emetic. Sydenham speaks highly of an infusion of two drachms of rhubarb in a quart of mild beer or other liquid for children, when the febrile symptoms are not intense. Vinegar and water was much praised by Galen as the best refrigerant, and if we recollect its astringent properties, perhaps its employment in phthisis has been too much neglected. M. Orban (Vide Thompson's *Mat. Med.*, p. 35), both at Tunis and in France, used it extensively in consumption, and says, that its effects were always beneficial when it produced a costive state of the bowels. The quantity taken daily was seven ounces diluted with forty-nine ounces of rain-water. Small doses of alum and sulphate of iron were prescribed at the same time. Dr. Roberts (*Medical Transact. of the Coll. Phys.*, vol. v.) strongly advocates the use of vinegar for checking the hectic and morning sweats, restraining hæmoptysis, and producing costiveness. Dr. Thompson speaks favourably of its palliative influence, and occasionally prescribed it with the infusion of calumba or cascarilla. Its external use has already been mentioned, and we think its internal deserving of further trial. Different combinations of the sedatives and narcotics are often available. It is in those cases where the hectic symptoms are urgent, that the pneumatic method promises to be of service.

Perspirations.—These are usually classed among the symptoms of hectic, though in phthisis they are no doubt in part supplementary of the pulmonary functions. The *general means* enumerated in the preceding section must form the basis of our treatment. When these are not successful, the use of sulphur deserves attention, and in cases where the sweating is partial, nitre and opium, as recommended by Bennet and Hoffman, may be tried. Where febrile symptoms are present, sudorifics may be successfully employed in checking perspirations. Adair and others have advocated the use of emetics on the same grounds. Morton advises waking the patient just before the perspirations come on. Percival recommends the external application of the decoction of bark ; this is also mentioned by Broussais. The sulphuric acid is one of the most effectual means ; the vegetable acids and the acetate of lead internally or in lotions may also be tried. Our object is rather to moderate than altogether to prevent perspirations, which may be considered, when not extreme, as beneficial. Exact ideas of how far the skin may be supplementary to the lungs are still wanting.

Diarrhœa.—This can be no longer regarded as a simple attendant upon the hectic fever, but in the great majority of instances is depending on local inflammation, which is sooner or later followed by ulceration. The knowledge of this fact will at once regulate the treatment of diarrhœa in phthisis, more particularly in the early stages of the disease, and demonstrates the injurious tendency of the purging system too frequently resorted to, as well as the necessity of avoiding the use either of medicine or food which unnecessarily stimulates the digestive mucous membrane. We have seen how rapidly the disease progresses when abdominal symptoms are conjoined with the thoracic; the state of the alimentary canal, and its liability to inflammation, should therefore, we repeat, be constantly kept in view in the treatment of phthisis. Our best preservative and curative measures consist in warm clothing; mild temperature; great attention to the skin; bland nutritious diet; the use of only mild purgatives when necessary; or what is still preferable, enemata; also the hip bath, and local blood-letting when symptoms of inflammation are present. To these means we may add mucilaginous drinks, small doses of rhubarb, hydrargyrum, cum cretâ, ipecacuanha, Dover's powder, chalk mixture, white decoction, and other slightly astringent drinks, as lime water and milk, or infusion of pomegranate and milk.

In severe and more advanced cases Dr. Stokes speaks highly of the effect of a large blister on the abdomen. Dr. Graves thinks a grain of the nitrate of silver, given three or four times a day, is one of the best remedies. When arresting the discharge is important, the turpentines and balsams, given as enemata, with opium, may be resorted to. The sulphate of copper and acetate of lead, with opium, have been occasionally successful. Strychnia, a combination of cusparia, nitric acid and laudanum, and with discrimination, diffusible stimulants, have proved advantageous in particular circumstances. It is only by a knowledge of the pathology of diarrhœa in phthisis, that our remedies can be rationally or successfully applied.

Cough.—Tranquillizing the cough is an important indication. By interrupting sleep and accelerating the circulation, it exerts a powerful influence over the general comfort and health of the patient. Before tubercular softening has taken place, and communication established with the bronchi, the expectoration remaining white and frothy, coughing cannot be regarded as a salutary effort, but the result of pulmonary irritation, and should be treated accordingly. At a later period it is evidently necessary to avoid suffocation, but even then its frequency and violence may be advantageously moderated. In addition to those general measures to which we have so often referred, the cough may be calmed by mucilaginous mixtures, decoction of Iceland moss, small doses of hyoscyamus, Prussic acid, digitalis, the different preparations of opium, æther, the inhalation of emollient and narcotic vapours, breathing the gases advised in the pneumatic method, and occasionally by the use of small doses of tonics, or the employment of antiphlogistics as the general state of the patient may indicate. In the more advanced stages, when bronchitis and ulceration are present we must be guided in our treatment by the intensity of the febrile symptoms. It is at this period that the trial of chlorine and iodine inhalations have been particularly recommended, though in many cases their use during the first stage of the disease ought not to be neglected. The activity of these agents may be moderated by combining them with different narcotics. Sulphur, turpentine, copaiba, are often serviceable in chronic cases. Emetics and nauseants are valuable, but as well as expectorants in general, must not be prescribed without attention to the state of the gastric mucous membrane. Sinapisms to the chest with pediluvia often relieve urgent symptoms, and when suffocation is threatened from bronchial obstruction, these means with emetics and diffusible stimuli are our principal resources.

There are many other incidental indications, which we have purposely omitted. Our object in this rapid sketch was to present to the mind of the younger portion of our readers, an outline of the more prominent pathological features of consumption; to expose some of those general principles of treatment which may fairly be deduced from our present knowledge of its causes and morbid alterations, and to direct his attention to those remedial measures which have been advised either for its palliation or cure, by numerous and judicious practitioners; not attempting to define their *modus operundi*, or subjecting them to the ordeal of any pathological theory. In the course of our inquiries, we have often been discouraged by the abundance and contradictory nature of the materials presented to our notice; while, at the same time, we have felt surprised at the ease with which closet therupeutics may be invented, and those *ad libitum* pathological combinations conjured up, for the removal of which, our remedies are so conveniently and accurately adjusted. It would not have been difficult to have minutely detailed a multitude of precise and definite regulations for the treatment of phthisis, and perhaps to have impressed the minds of some with a favourable idea of our superior curative acumen; but we have studiously endeavoured to avoid the inducements which empirical reputation in medicine holds out, convinced that there are few obstacles more fatal to the progress of science and improvement, than those preposterous pretensions which quackery so unblushingly propagates, at the expense of all honourable feeling and to the detriment of the health of a too easily deluded population.

Notwithstanding all that has been written and done upon the subject of consumption, we are still totally unacquainted with anything like a satisfactory method of cure, and it is only when the upright spirit of inquiry which has characterized our author's researches, shall have equally pervaded the minds of those who are continuing the investigation, that any decided increase to our present knowledge, or rather the removal of our present ignorance, may be expected. To be strictly honest in medicine requires unusual probity and devotion; our efforts must not be undertaken with the eager hope of discovery, but with the conviction that at best we can only furnish our item to the now accumulating mass of accurate observation, from which medicine as a science shall hereafter be eliminated. In looking back on what has yet been accomplished, and comparing it with what remains to be done, we cannot avoid the impression that we are now executing the labour by which future generations are to profit; but with the present means of observation in our power, and the facilities for recording and communicating the results of our inquiries, what may we not anticipate from the united exertions of minds alive to the advantages to be gained by systematic research, and called into action "under circumstances different from any which have yet existed in the world, and over an extent of territory far surpassing that which has hitherto produced the whole harvest of human intellect?" (Translator.)

THE END.

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